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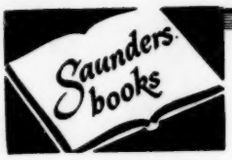

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PEDIATRICS, MENTAL RETARDATION, AND DELINQUENCY

Charles Bradley, M.D., Portland, Ore.

Although for many years mental retardation and delinquency were closely associated in the public mind, recent studies have tended to disprove a really close relationship. However, for some mentally retarded children delinquency may be a greater hazard than for their more fortunate brothers and sisters. Although most physicians whose practices include treatment of children frequently encounter mental retardation as a clinical problem, medical education has so far offered little in the way of training or experience in this area.[1] It therefore seems appropriate to present for the pediatrician and the family physician a discussion of mental retardation, including its incidental relationship to juvenile delinquency, and to briefly refer to recent practical literature on its diagnosis and management.

DELINQUENCY

Although this discussion will be focused primarily on mental retardation, brief reference must be made to delinquency. The term itself may be defined in several ways, which differ in various parts of the world. In essence, however, delinquency involves the repeated carrying out of acts that are contrary to the local law and conventional moral codes; some would add that the delinquent is one who does this and "gets caught." Causes of juvenile delinquency are many and are more adequately discussed elsewhere.[2] In general, delinquent behavior occurs when a child is repeatedly confronted with situations that he cannot meet with satisfaction or success through acceptable actions. Among such situations are those in which he feels that he is rejected by his family, by his mates, or by society. Similarly, failures in school or other competitive situations may be factors in motivating delinquency for some children.

In many instances the forces that lead to delinquency are beyond the influence of the practicing physician. Such situations are those that involve parents of limited intelligence or those who are so overwhelmed by economic and emotional pressures that they cannot meet their children's needs nor cope with their problems. In many instances in which parents are involved they neither want nor seek help from their physician. Economic and social pressures, which are thought to account for much juvenile delinquency, require remedies of a far different type than can be supplied by the medical profession. For such pressures relief must be sought through social planning, improved community resources, and protective agencies such as the juvenile court. Medical consultation is likely to be sought when mental retardation appears to be an important factor in individual cases of delinquency. For this, as well as for situations in which better planning for a retarded child may diminish his likelihood of delinquency, the physician must be prepared.

MENTAL RETARDATION

Mental retardation implies by definition that a child's intelligence has developed at a slower rate and to a less adequate degree than is the case with most children of similar age. It also implies that as a physically mature adult he will not have achieved intellectual growth that is up to normal standards. Mental retardation is usually considered in the same light as most constitutional characteristics, in that it represents an impaired capability or capacity that has been present for some time in the past, is now apparent, and will continue to persist in the future. In itself, impaired capacity for average intellectual growth cannot usually be remedied. As such it must be distinguished from apparent retardation (pseudoretardation) secondary to some other disability such as physical illness or emotional disturbance. Mental deficiency is for practical purposes synonymous with mental retardation. Terms such as idiocy, imbecility, or feeble-mindedness have become so associated with derogatory implications that they are quite unacceptable to those who have the well-being of retarded children at heart. For this reason they should be dropped from the physician's working vocabulary.

Mental retardation is usually considered as a handicap quite distinct from mental illness such as psychosis or other emotional disturbances that fall within the scope of psychiatry. Some mentally retarded persons may, of course, become mentally ill, just as they may also be-

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Read in the Symposium on Emotional Problems of Children as They Contribute to Juvenile Delinquency, before the Joint Meeting of the Section on Nervous and Mental Diseases and the Section on Pediatrics at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 25, 1954.
1. Bradley, C.: Medical Education in Mental Deficiency, Am. J. Ment. Deficiency 58: 310 (Oct.) 1953.
2. Bakwin, H., and Bakwin, R. M.: Clinical Management of Behavior Disorders in Children, Philadelphia, W. B. Saunders Company, 1953.

come physically ill, or even delinquent. There are said to be some 4,500,000 mentally retarded persons in the United States; perhaps a third of these are children. According to recent statistical reports the incidence of mental retardation in groups of delinquents is about the same as it is in the general population. Earlier reports were more incriminating, indicating that mental retardation was a major cause of delinquency. In retrospect it appears that these earlier reports may have been based on less refined testing devices and less reliable analyses than are currently available.

In spite of the fact that most delinquents are not mentally retarded and that most mentally retarded children do not become delinquent, there are certain hazards for the defective child that may make delinquency a threat. Many retarded children are limited in their ability to comprehend important social standards. Retarded children are notably gullible and frequently easily led by others who may involve them in delinquency. For many retarded children opportunities for success and satisfaction in many normal childhood activities, including schoolwork, are definitely decreased. For others, the realization that they cannot keep up with family standards or find approval may be most discouraging and lead to delinquency. This is illustrated in the following case.

CASE 1.—A 13-year-old girl was seen by the physician because of stealing, which started at about the time she entered school at the age of 6. This had included stealing considerable sums of money from a church and small personal articles from her schoolmates; she finally came to the attention of the police when she had stolen over $100 from purses and billfolds in the cloakroom of a church to which she belonged but did not attend. Academic work had been a problem for her from the time she had entered school. This was in contrast to the record of her three sisters, all of whom did superior school work and were quite successful socially. The parents were defensive about her possible deficiency in intelligence and insisted that her early development had been precocious. However, on a Binet intelligence scale she had achieved a mental age of 9 years 8 months, I. Q. 75, and details of her school progress showed repeated inability to keep up with the class or grasp what was presented. She tended to compensate by making excessive demands for attention in the schoolroom. Further analysis revealed that stealing was directly related to her lack of satisfaction in the school area, particularly as compared with her more successful sisters. Heretofore no special arrangements had been made to provide her with a school program adjusted to her borderline defective intellectual capacity.

Life experience is of course quite unlikely to result in delinquent actions in severely retarded children who are so helpless as to lack the capacity or initiative for such behavior. For some the likelihood of their becoming sufficiently independent of their parents likewise precludes such activity. While retarded children who live in rural areas may find more readily available outlets for satisfying life experiences and may be relatively free from failure in competition and the likelihood of ridicule and ostracism that may confront the city child, the incidence of juvenile delinquency in rural areas does not differ notably from that in urban communities. Possibly the lack of facilities to cope with delinquency in sparsely populated areas may be a factor in this.

Mental retardation is, of course, a category and not a diagnosis. In using the term one merely sets a sector of the population apart from their more fortunate companions who enjoy greater intellectual and social capabilities. Mentally retarded children vary from one another in intelligence, social competency, and personality just as do youngsters of superior intellectual endowment. The two mongoloid boys described below illustrate this. While apparently suffering from the same clinical type of retardation and falling roughly within the same age range, they differ considerably in capabilities.

CASE 2.—The parents of a 7½-year-old boy sought an accurate evaluation of the mental retardation that they had recognized. This boy was one of nine siblings, none of the others having any special problems. The mother had suffered from hypertension during this pregnancy. The baby had contracted pertussis in the neonatal period and was desperately ill; following his recovery from this he became ill with pneumonia. At 8 months of age he nearly died from measles complicated by pneumonia. Subsequently development was definitely retarded, with walking first at 5 years of age, limited development of speech, and inability to attain bladder control. His present capabilities showed that he was unsuccessful in dressing himself and required considerable supervision, although he was quite happy at home. Office examination showed small physical stature, mongoloid facies, pigeon-breast deformity, and marked hypotonia of all muscles. His reactions in the office were those of a child of not more than 2½ years of age. A diagnosis of severe mental retardation seemed justified, with future mental development expected to proceed at perhaps one-third the average rate.

CASE 3.—The mother of a 5½-year-old boy accepted the fact that he was mentally retarded and that he suffered from mongolism. The mother had had hypertension for many years. This boy was conceived at the time of the menopause, and there had been a threatened miscarriage at seven months. His developmental history showed that he first sat at 11 months, walked at 2 years, and was thought to have started talking at about the same time, although details were not recalled. Toilet training was easy. His present abilities included the capacity to dress himself completely except for tying his shoes. He was sociable with other children and reasonably self-assertive with them. He was able to prepare his own breakfast, had a happy disposition, a good memory, and an excellent sense of rhythm. His adjustment in the home was considered good, and he was felt to be quite self-sufficient within the family circle. Office examination showed definite mongoloid facies, with prominent epicanthus; a large, furrowed tongue; considerable congestion of the nasal passages; extreme muscular hypotonia; a short apical systolic cardiac murmur; short, stubby fingers and toes; small genitals; relaxation of all muscles and joints; and hypoactive reflexes. A diagnosis of mental retardation of the mongoloid type was made, with a mental age of 3 to 3½ years, indicating that he was developing at from one-half to two-thirds the expected normal rate.

For practical purposes the degree to which a child is retarded, as compared with other children of similar age and average intelligence, is far more important than the cause or clinical type of his deficiency. This concept of each retarded child possessing capabilities bearing a definite and what will be fairly constant relationship to those of so-called normal children is of the greatest clinical importance. At the risk of oversimplification, and recognizing that there are some exceptions, it may be stated categorically that in daily office practice it is urgent to think of each retarded child in terms of the percentage or fraction of so-called average intelligence with which he may be endowed. Since the retarded child has developed, is developing, and will continue to develop in intellectual capacity at an approximately constant rate throughout his growth period, one may compare this rate with that of most children and accurately diagnose the degree of retardation. From this one may predict the future rate of development and how the child will com-

pare with other children at various future ages. An accurate estimate of this is essential to intelligently planning care and management. Spock expresses this well in his book for parents.[3] It is interesting, however, that there is so little literature for the medical profession stressing this important fact. It is certainly an aspect of mental retardation that is frequently underrated or missed in clinical practice.

In many respects the cause of a child's retardation is of less importance than the degree to which he is retarded. There are some features of etiology that are significant to the clinician. Complete discussions are available elsewhere.[4] Briefly, however, it should be noted that hereditary factors are not the major cause of retardation as was once supposed. The majority of children seen in office practice come from families of average or superior intelligence, and for at least half of them no definite cause may be determined. These must be considered as retarded on a nonspecific developmental basis, which in the light of present knowledge places them in the same category as children with other congenital anomalies. Mongolism is an example of this type of retardation. More definitely recognizable causes may in individual cases be related to trauma, toxemia, or infection involving the central nervous system in early life. Examples of this are complications of pregnancy, the first trimester of this period being most critical insofar as the development of the brain and related structures are concerned. Complications of childbirth may occasionally be a cause of retardation; increasing evidence implicates anoxia as a more frequent hazard than mechanical damage. Acute infections in early life that involve the meninges and brain directly, or those accompanied by asphyxia, may leave sequelae that include mental deficiency. It is interesting that head injury in older children rarely affects subsequent mental development.[5] There are, of course, rare, progressive deteriorative neurological disorders starting at various ages that lead to intellectual impairment. Fortunately they are not frequently encountered. When they are responsible for retardation, the concept of subsequent intellectual development proceeding at a constant rate is of course not valid. For most children, however, when definitely recognizable past injurious experience has resulted in mental retardation, one can have faith that what has happened has happened, that the injury will not be progressive, and that intellectual development will proceed at a constant rate, even though it will be slower than normal.

The major focus of management for the retarded child must be on protection and education. He requires greater protection than his more competent fellows because of the prolonged period when he must be dependent on others for his care and because delinquency may be a hazard for him. The aim of his education must be to help him develop as far as possible his own limited capacities for taking care of himself and pursuing occupations that may further contribute to his self-sufficiency. Custodial care only, which is often recommended, should, of course, be reserved for the most helpless.

PHYSICIAN AND PARENTS

The physician's role in the management of retarded children would be relatively simple if all that were required was to make a diagnosis and to direct management. Granted that training that would prepare him for this is not readily available for every physician, the problem is usually complicated by the mixed-up, confused feelings that parents are so apt to have about their own retarded children. These are readily understandable when one considers how easy it is to be disappointed in such children, whether one consciously recognizes this or not. Moreover, mixed feelings may be due to the fact that the trouble is "mental" and may be considered a stigma that reflects unfavorably on the family, in terms of either inheritance or of some mistake that the parents feel they have made. For many parents there are valid reasons, based on their personal beliefs or superstitions or on their own past life experience, that make mental retardation in their own children a confusing and discouraging problem. It is important that the physician recognize and be sympathetic with these individual difficulties and be prepared to deal with them as part and parcel of the clinical problem. Sheimo's excellent review of this subject includes a summary of the pertinent literature.[6] Parents' feelings are revealed with unusual clarity in the books by Pearl Buck and Dale Rogers describing their personal experiences.[7]

Dealing with parents' feelings is as important for the physician as making a diagnosis and outlining treatment. Understanding of their child is important if parents are to accept him. Only by so doing will they be in a position to cooperate with the physician in his plans for treatment. The physician must so deal with parents that this will be possible. No single case report can point out all facets of this problem, but the following case may illustrate some of the features that have just been suggested.

CASE 4.—The physician of a 3½-year-old girl suspected her of mental retardation of the mongoloid type, but her mother prefaced her interview with the consultant by the statement, "Now don't you, too, tell me you can do nothing for me." The girl was the result of the only pregnancy during what was the second marriage for both parents and was born when the mother was 46 years of age. The family life of both parents with their previous partners had been unusually unhappy, and both felt that they had "gotten nothing out of" previous children who were no longer with them. Mary's developmental history was hard to evaluate owing to the mother's defensiveness. She was thought to have "sat up at around the normal time," walked at about 18 months of age, and speech had developed slowly. Her teeth had erupted late, and toilet training had not been successful. Present capabilities included speech limited to a few isolated words poorly enunciated. She was able to partially dress herself but seemed unusually dependent on the mother. Office examination showed a neatly groomed, blonde, 3-year-old girl, with definite mongoloid features, a large tongue, mouth held agape, and nasal passages that were small and congested. She had definitely speckled iris, extreme muscular hypotonia, peg-shaped teeth, a simian line on one hand, and small fifth fingers. She appeared to be functioning at about the level of a 2-year-old, and this was confirmed by psychometric examination, during which she was entirely cooperative. Indications were that she was only moderately mentally retarded and would presumably profit from definite

3. Spock, B.: Pocket Book of Baby and Child Care, New York, Pocket Books, Inc., 1946, pp. 474-478.

4. Kanner, L.: A Miniature Textbook of Feeblemindedness, New York, Child Care Publications, 1949. Bakwin and Bakwin.[3]

5. Blau, A.: Mental Changes Following Head Trauma in Children, Arch. Neurol. & Psychiat. 35: 723 (April) 1936.

6. Sheimo, S. L.: Problems in Helping Parents of Mentally Defective and Handicapped Children, Am. J. Ment. Deficiency 56: 42 (July) 1951.

7. Buck, P.: The Child That Never Grew, New York, John Day Company, Inc., 1950. Rogers, D. E.: Angel Unaware, Los Angeles, Fleming H. Revell Company, 1953.

education and training. Home care was discussed, and some references were given the mother on procedures to carry out. A trial of therapy with glutamic acid was suggested, and a definite attempt was made to give the mother constructive steps to follow, encouraging her to help her child develop to her fullest capabilities in spite of the fact that she would be handicapped. The mother seemed unusually appreciative of a constructive approach, although she was reluctant to accept the fact that complete "cure" was not possible.

Delinquency was not a pressing hazard with this child. However, it is well to keep in mind that wholehearted, clear-thinking acceptance of the retarded youngster by her parents and assurance that they can and will cooperate in a future program for her offer maximal assurance that she will experience satisfactions in her own life. This is powerful prophylaxis against delinquency as well as other unhappiness.

EVALUATING THE RETARDED CHILD

Degree of Retardation.—Accurately evaluating the retarded child first of all involves a clear-cut diagnosis. In this the degree of retardation is of paramount importance. In accurately estimating the degree of retardation one must understand the child's past and present intellectual capacities; from these one may predict future capacity. The basis for this may well be information from the following four sources: the early developmental history, a description of present capabilities, what is observed during office examination, and the results of psychometric tests.

A good developmental history includes information as to the ages at which certain important skills were acquired. This includes such facts as the age at which the infant first sat alone, stood without support, walked unassisted, spoke in single words or conversed in more complex terms, and satisfactorily established bowel and bladder control. For older children it may include statements as to when a child first used table utensils efficiently, dressed himself, was able to assume responsibility for not wandering off, ran errands capably, or was able to carry out practical intellectual activities such as finding his way home, telling time, or making change. From these data one can judge the approximate rate at which basic skills were acquired compared to other children who are not handicapped, and thus one can estimate the degree of retardation that was apparent in earlier life.

A description of present capabilities may well include some of the items just mentioned. These may be described more accurately by parents in terms of what is being done at the present time than can be recalled from events of the past. For orderly arrangement of data it is practical to inquire first as to the child's self-sufficiency in such activities as dressing, feeding, and washing himself. Then one may ask about his present play activities and interests. Finally, if he has attended school, his scholastic proficiency may be explored. All this should give a picture of the approximate age level, in terms of normal or usual achievement, at which he is at present functioning. The mother's own estimate of the latter is frequently accurate if she has had experience with other children. By comparing the age level at which the child is functioning with his actual life-age, the degree of his retardation may be estimated. A questionnaire form for compiling such information as to present capabilities and translating it into a "social age" and "social quotient" is available in the Vineland Social Maturity Scale,[8] which some physicians may find helpful.

While observation during office examination may turn up few physical signs of diagnostic significance, occasionally the reverse may be true. Some types of retardation, such as those associated with mongolism, cretinism, and cerebral palsy, depend on physical examination for diagnosis. Two nonspecific findings are quite common in retarded children. One is relaxed muscle tone (hypotonia), which is often conspicuous, particularly in those who are severely retarded. It is frequently noted in the absence of all other abnormal neurological signs and, though diagnostically helpful, is of uncertain origin. A second finding may be a calvaria that is small as compared with the skeletal structures of the lower face. In extreme degrees this is termed microcephaly. It signifies that during pregnancy or infancy, before the sutures and fontanels closed, the brain, which determines the size and shape of the calvaria during these periods, was small on the basis of either maldevelopment or atrophy. In evaluating all physical and neurological findings the physician may gain information, particularly involving sensory or motor defects, as to what degree they may have influenced the patient's earlier slow development, quite apart from his mental retardation. The general behavior in the office, apart from the technical aspects of the examination, may be quite revealing to experienced eyes as to the mental age at which a child is functioning.

Psychometric examination is the most important laboratory procedure in the clinical study of retarded children. For the majority it is the only one that is essential. Competently carried out by a qualified psychologist it will result in a report to the physician of a definite present functional mental age or, in terms of the conventional intelligence quotient, express a "percentage of normal intelligence." Psychometric findings may be particularly valuable when information obtained from parents alone is misleading or when the influence of sensory or motor disability has confused the picture. The following case illustrates a situation of this type.

CASE 5.—The parents of a 5½-year-old boy wished information about his slow speech development. His developmental history showed that he had first walked at 16 months of age but that there had always been extreme clumsiness in motor activities. He first began to speak at about 3 years of age, and pronunciation had always been poor. His present capabilities included the ability to dress himself except for tying his shoes and to speak in short phrases but not too clearly. He had a short attention span; he was quite dependent on his parents. Medical history showed that he had been born by breech presentation, and his condition following birth was said to have been precarious. There was much choking on feedings during the first months of life, and stridor was noted throughout infancy and was not relieved by roentgen therapy to the thymus. Office examination showed overactive reflexes, an infantile sort of speech, and general reactions that seemed to be at about a 2½ year level. The physician's impression was that of mental retardation, but psychometric examination showed that on the Binet scale he had a mental age of 5 years, with an I. Q. of 92, in spite of poor coordination. A diagnosis of mild cerebral palsy of the spastic type, without mental retardation, seemed justified. Follow-up contacts, during which the parents were

8. Doll, E. A.: Measurement of Social Competence, St. Louis, Educational Publishers, Inc., 1953.

able to accept guidance in encouraging greater independence and social participation for this child as well as providing him with speech training, revealed that he was able to start first grade shortly before his seventh birthday.

For the great majority of retarded children, information obtained from the developmental history, a description of present capabilities, observations during office examination, and the psychometric report can be translated into a present mental age. If one thinks of this as a percentage, or perhaps better yet as a simple fraction of the child's chronological age, it gives one a picture of the relative rate of development up to the present time, and from this one may predict the future rate. This may be illustrated by the following case.

CASE 6.—The mother of a 12½-year-old boy accepted the fact that he was mentally retarded, but she was uncertain as to the future outlook. Developmental history indicated that retardation was first suspected when he failed to walk until 2 years of age. Speech developed much later, although toilet training had not been difficult. At the age of 7 he had been examined by a qualified physician, who indicated his mental age was about 4 years at that time. His present capabilities included ability to dress himself completely except for lacing his shoes. He attended school, with no social problems but likewise with no academic progress. He had a special home teacher for a year when he was 9 years of age, had made some progress in reading and writing, but had only recently been able to count consecutively to 10. Office examination showed an obese boy in whom the cranial vault was definitely small in proportion to the lower facial skeleton, suggesting a moderate degree of microcephaly. No changes of puberty were apparent. He talked in a high-pitched, unmodulated voice. There was definite muscular hypotonia, and tendon reflexes were absent. Speech was quite indistinct. Psychometric examination indicated a mental age of 6 years 6 months, an I. Q. of 52. Developmental history, present capabilities, impression gained in the office, and psychometric examination all dove-tailed into a definite picture of mental retardation of moderately severe degree. Future intellectual development should progress at about half the average rate. As an adult, it could be anticipated that in intellectual tasks his abilities would be commensurate with those of a child of 9 or 10 years of age.

In young children one may occasionally be unable to obtain enough data to make an accurate diagnosis of the degree of retardation on the first visit. If the child is completely helpless, severe retardation may be obvious. For many infants, however, subsequent office visits and further information may be necessary. This is particularly true when the likelihood of mental retardation is apparent at birth, as in mongolism. Only by subsequent observation can the degree of retardation be determined. Children with mongolism vary greatly in the degree to which they are retarded, the number of their physical anomalies bearing no direct relationship to their intellectual capacities. The earlier case reports in this presentation illustrate this, while the following case may demonstrate the need for follow-up contacts in an infant who is suspected of retardation.

CASE 7.—A 20-month-old infant was thought to be mentally retarded and was thought to have certain mongoloid characteristics. His developmental history showed that he sat at 9 months, that his first teeth erupted at 13 months, and that he had been walking by holding onto furniture for three months but had not walked alone. No speech whatsoever had developed. His present capabilities consisted of being able to hold a cup but not use it efficiently and to grasp a spoon but not manipulate it competently as a table utensil. No satisfactory toilet habits had developed. At home his disposition was quite happy. Examination in the office showed a fat, jovial baby who was able to crawl actively and stand when holding onto a support. There was generalized muscular hypotonia. The eyes appeared somewhat slanted, and the epicanthic fold was rather prominent, but there were no other definite signs of mongolism. Psychometric examination was not practical at this time. It was felt that there was some evidence of retardation and no definite proof of mongolism. A return visit after a number of months was suggested. When seen at the age of 32 months, he had started to walk at 26 months and had recently begun to use one or two single words appropriately. He had improved in his capability with table utensils but assisted with dressing only to the extent of holding out his hands, and no progress had been made in toilet training. At this time mongoloid features were definitely present, with small, rounded cranial vault; short, stubby fingers and toes; and extreme muscular hypotonia, with hypoactive reflexes. Psychometric examination showed a range of responsiveness from the 18 to 24 month level, with most successes below the 20 month level. A diagnosis of mongolism, with mental development proceeding at about two-thirds the normal rate, could definitely be established at this time.

Two observations that may be confusing to parents and physicians alike may be mentioned at this point. Innate musical talent, such as a sense of absolute pitch and good rhythm, is apparently not directly related to intelligence. Putting these skills to practical use in terms of reading music or playing an instrument may, of course, turn out to be beyond the child's capacities. Moreover, a child may have a comparatively good memory for tangible things, such as "places and faces." Except in severe mental retardation both of these talents may be present to a degree that is puzzling unless one realizes that in the face of definite evidence of deficiency in other intellectual areas the diagnosis need not be altered.

Etiology.—Causes of retardation have already been discussed briefly and reference made to more complete sources of information. A knowledge of etiology is of immediate practical value to the physician mainly insofar as it helps him in differential diagnosis. Some types of retardation, such as cretinism, require medical therapy, though these are rare in actual practice. Occasionally a progressive neurological disorder may seriously alter the prognosis. The most frequent necessity for understanding etiology stems from the need for clearly distinguishing impaired intellectual and social efficiency, which resembles mental retardation but is actually secondary to other conditions. A variety of causes for school failure is a case in point.[9] Such problems as specific reading disability, which are not directly related to intelligence, may be involved.[2] Kanner's description of factors involved in distinguishing true from apparent mental retardation is particularly pertinent.[4] Assaying the degree to which motor or sensory handicaps impair social and scholastic performance is within the province of the physician. It may, however, be difficult in children with handicaps such as cerebral palsy, which have been present since birth and for which adequate psychological tests are not applicable. For such problems the family physician may need to seek consultation. While making a positive diagnosis of mental retardation is a serious matter, failing to make it may be equally serious. This is particularly true when parents suspect or know what is the trouble and wish the physician's help in confirming their suspicions and laying practical plans for the future.

9. Bradley, C.: Management of Behavior Problems in Children, M. Clin. North America 37: 565 (March) 1953.

MANAGEMENT OF THE RETARDED CHILD

Protection.—For many retarded children protection must be a major therapeutic objective. This is particularly true in the case of those who are severely retarded. Custodial care at home or in an institution may meet most of their needs. Before recommending this, however, the physician must be sure of the degree of retardation, since education also is necessary for the majority of those who are retarded. Even for the slightly retarded, some measures of protection will be required. Before achieving any considerable degree of self-sufficiency, the child will have somewhat prolonged periods of infancy and dependency. During the dependency period the retarded child will thrive only if he receives the same, if not more, love, acceptance, support, and encouragement as other children need. Whether he can obtain this more abundantly from his own family at home or in a boarding situation adapted to his special needs will hinge on many factors. There is no complete substitute for the care of one's own loving parents during infancy. Certainly the physician cannot conscientiously discourage the desire of parents to provide this for their own children. Whether such care is possible in the home will be related to the attitudes of the parents, their health, the economic pressures to which they are subject, and the special needs and problems of their other children. While institutional placement may be the best available solution, even in infancy, for some retarded youngsters, its routine recommendation for all by the physician is not consistent with sound medical practice.

For older retarded children protection may continue to be a major consideration, since it is for them that the hazards of delinquency may be more compelling. Protection combined with educational advantages and the opportunity to mingle successfully with other children on equal footing in a special school, either in their own community or elsewhere, must be seriously considered. For adults who are retarded, and therefore limited in their capacities to manage themselves and their affairs successfully, some supervision both in their daily life and in job placement may be a necessity. Many can live a rewarding life in the community, if this can be arranged. This, rather than protracted segregation in an institution, may be the aim of quite realistic planning. The literature on protective services for retarded persons is quite limited, apart from that dealing with the administrative aspects of institutional care. The files of the *American Journal of Mental Deficiency,* as well as consultation with those who are familiar with the special needs of the mentally deficient, are the most readily available sources of information in this regard.

Education.—Special education must be the other major objective in the management of all retarded children, except the minority who will always be completely helpless. It must be geared specifically to each child's particular potentialities, which depend on the degree to which he is retarded. It is practical to think of education in the three successive stages of early training in self-care, social and scholastic education, and vocational training for an economically productive life. Early training in self-care may in many instances be quite well carried out at home, if the parents accept the responsibility, are capable, and other circumstances permit. Parents may need more guidance in this than the physician can provide in detail. Practical procedures are outlined in such publications as those of Giannini and of Pollock and their associates.[10] Similar training is part of the beginning program of all good special boarding schools for younger retarded children. Lists of these schools, both private and state-sponsored, are available in a recent annual report of the American Association on Mental Deficiency.[11] The physician will do well to recommend only schools concerning whose facilities he has obtained firsthand information from personal observation or other reliable sources. He may also profitably inform himself of what is being provided on a day-program basis in his own community. Many of the recently formed local and state parents' councils for retarded children that are operating on a sound basis are a good source of information regarding the facilities and quality of special schools.

Scholastic education must be planned on a special basis for even the moderately retarded child. Rarely can he profit from regular community schools where the classes are large, the curriculum progresses too rapidly for him, and he is subjected to competition with much more capable children. Such experience is bound to be discouraging, and while as such it does not inevitably result in behavior difficulties or delinquency, its influence is certainly in that direction. At times elementary academic instruction for a retarded child can be carried out capably in the home if the parent is familiar with what material is necessary and has the patience and skill to present it slowly and with repetition. The time when a child is ready to commence such instruction depends on the degree to which he is retarded. A mental age of about 6 years is usually considered essential to grasping subjects taught in first grade. Suggestions for home teaching programs are available in outlines prepared by Osterhout and Chamberlain and Moss [12] and the book by Pollock and Pollock.[10b] Academic instruction is usually far better presented by experienced teachers than by parents. Most children, whether or not they are retarded, will apply themselves to it more enthusiastically in a school setting outside their home. In some communities there are special private schools; in others there are special classes in the public schools. Here again parents' councils may be effective sources of information. Residential school or institutional placement offers the best program of academic study for many retarded children. Such placement may be particularly recommended for children of school age who are only moderately retarded, since they will profit most from the special instruction that is offered. Private schools of any standing are inevitably expensive. The excellence of a state school may be gauged to a considerable degree by the extent and quality of its educational program.

10. (*a*) Giannini, M. J.; Snyder, E.; Michal-Smith, H., and Slobody, L. B.: A Home Training Program for Retarded Children, Pediatrics **13**: 278 (March) 1954. (*b*) Pollock, M. P., and Pollock, M.: New Hope for the Retarded: Enriching the Lives of Exceptional Children, Boston, Porter Edward Sargent, 1953.

11. Directory, American Association on Mental Deficiency, Willimantic, Conn., 1954.

12. Osterhout, E. D.: Teaching the Retarded Child at Home, Durham, N. C., Seaman Printery, 1950. Chamberlain, N. H., and Moss, D. H.: The Three R's for the Retarded: A Program for Training the Retarded Child at Home, New York, National Association for Retarded Children, 1953.

Vocational training for retarded persons is a subject in itself, concerning which a recent comprehensive report is available.[13] There are many tasks in the community that can be competently performed by persons of limited intelligence, some of these being of repetitive or routine nature, and they may offer a more rewarding experience to persons of limited capacity than would be the case with persons who are more ambitious and imaginative. Vocational training for such positions is an important part of the educational program of schools and institutions for older retarded children.

Medical Treatment.—Medical therapy is of course the area in which the physician feels most at home. Direct medical treatment, however, constitutes an important part of the management of a relatively small proportion of all retarded children. Those with cretinism, with chronic physical complaints such as convulsive disorders, and those for whom therapy must be directed toward specific sensory or motor handicaps make up the bulk of this minority. As far as medical treatment for mental retardation itself is concerned, the only medicament for which there is at present any enthusiasm is glutamic acid. Although the original reports concerning its use were promising, subsequent experience has proved disappointing in most hands. Glutamic acid, however, is not expensive, is nontoxic, and may be given to older retarded children for a three month trial period in doses of not less than 4 gm. three times daily after meals. Parents may feel that their child has thereby had the benefit of the one recent preparation that has been considered by some to be of merit. If it proves helpful, it may be continued indefinitely.

In reviewing these brief suggestions for the management of the retarded child in terms of protection, education, and medical therapy, the feelings and emotional requirements of parents and the occasional hazard of delinquency must be constantly kept in mind. Parents can carry out the physician's suggestions with confidence only if they feel that he knows what he is talking about and can present his ideas to them in ways that they can accept. When the physician can be of help to parents in understanding and accepting the child, as well as planning for him a life that will bring some feelings of satisfaction, delinquency will rarely be a threat.

COMMENT

The present discussion has been obviously centered more about retardation than delinquency. This seems logical when one considers the frequency with which retarded children are seen in daily practice in contrast with the rare request that come to the family physician for specific guidance in matters of delinquency. Although but a fraction of retarded children become delinquent, the physician is often in an advantageous position to reduce this hazard for that fraction. What is good planning in arranging for protection, education, and medical treatment is sound insurance against delinquency. The importance of a positive, constructive approach can hardly be overemphasized. While truly mentally retarded youngsters can never be "cured" in terms of removing their handicap, there is always something to be done for them and their parents by the first physician who is consulted. Even in such cases as the following one, in which retardation was extreme and management limited to custodial care alone, the physician was of great assistance to both parents with a problem that was clouding their entire married life.

CASE 8.—The parents of a 7-month-old infant were concerned about his lack of interest in his surroundings and his bizarre facial expression. The mother had been exhausted throughout pregnancy after extreme nausea and vomiting for the first three months, but delivery was uneventful. At birth it was noted that the baby's face was somewhat distorted, with prominent, keel-shaped forehead and flat temples. Examination showed a helpless infant with skull deformity apparently resulting from premature closure of the sagittal suture. There was a right internal strabismus. Reflexes were overactive, and the limbs responded to minimal stimulation with jerking movements suggestive of petit mal; developmental level seemed to be about 8 weeks. A diagnosis of scaphocephalism, with severe mental retardation, was made. The parents were able to understand and accept the diagnosis and poor prognosis, but the mother expressed a desire to talk to the physician alone. She then burst into tears and indicated that she and her husband had felt guilty ever since this boy had been conceived because of their ineffectual use of contraceptive methods, which were contrary to their religious beliefs. She wondered if this were responsible for her child's deformity and retardation. Definite assurance was given to her and later to her husband that this was not the case, with subsequent intense emotional relief on their part. They were extremely grateful and subsequently showed unusual capacity to deal with the special problems of this child's care in a practical, accepting, and constructive manner.

As a final point in discussion, the frequently controversial issue as to whether a retarded child should be kept at home or placed elsewhere must be mentioned. As has been indicated above, there is no general rule that satisfactorily applies to all situations. Physicians tend to err in always recommending institutional placement and frequently rationalize their stand as adroitly as do parents and others who do not agree with them. For some parents a retarded child is an unwanted burden whose presence in the home is embarrassing to them and to others in the family, whether this be recognized and admitted or not. For other parents the need to care for their baby and offer him their love and support directly makes placement elsewhere entirely unacceptable. When parents are given medical advice that they cannot accept they look elsewhere and keep looking elsewhere. Only rarely will families forsake for someone else the physician who can diagnose with assurance the presence and degree of their child's mental retardation and adapt the recommendations for management to both the parents' deep emotional requirements and the child's training and educational needs. This is good medicine as far as mental retardation is concerned. It is equally good medicine as far as reducing the likelihood of delinquency in retarded children is concerned.

SUMMARY AND CONCLUSIONS

Mental retardation is not a major factor in most juvenile delinquency, but delinquency may present a hazard for some retarded children. Physicians who encounter retarded children in their practice should be able to

13. Vocational Rehabilitation of the Mentally Retarded, Am. J. Ment. Deficiency **57**: 171-337 (Oct.) 1952.

offer competent guidance to parents, for success in the management of retarded children depends to a considerable extent on how adequately the physician deals with the feelings and attitudes of the parents. Intelligent planning for retarded children hinges on an accurate diagnosis of the degree of retardation for each patient. Protection and education are major considerations in the management of retarded children. Adequate long-range plans for retarded children should largely preclude the likelihood that they will become delinquent.

SPECIALIZED TECHNIQUES IN THE TREATMENT OF JUVENILE DELINQUENCY

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In the past, considerable pessimism has been expressed with reference to the treatment of juvenile delinquents. Follow-up studies of such "treated" cases revealed a high percentage of failures. It should be pointed out, however, that many of these so-called treatment procedures often consisted chiefly of environmental manipulation, such as putting children in foster homes, correctional institutions, or in schools for the mentally defective. Occasionally the children and their parents were seen in child guidance clinics for a few therapeutic sessions only. The first child guidance clinic in which the "teamwork approach" of psychiatrist, clinical psychologist, psychiatric social worker, and pediatrician was used was opened in 1909 in Chicago, under the directorship of Dr. William Healy. This was established as a service for the Juvenile Court and known as the Juvenile Psychopathic Institute, now called the Institute for Juvenile Research. Outpatient treatment of these juveniles was not successful. The majority of the delinquents then, and now, are in the adolescent age range, and they have the normal adolescent strivings for mastery and independence and, in addition, have the typical vacillation between defiance and submission and cruelty and tenderness, which is so characteristic of the adolescent. These young people frequently would identify the clinic personnel with the court officials and would not cooperate for treatment. Actually, this early pioneer work was chiefly organized on a research basis, and treatment facilities were meager.

As other child guidance clinics were organized, the tendency was to accept and treat the neurotic rather than the delinquent child and also to put emphasis on the treatment of the preschool child and the grade school child, rather than to attempt working with the adolescent. The philosophy of most child guidance clinics was, and is, to work with those children whose parents themselves request aid. The parents of juvenile delinquents frequently see no need for treatment and resent being referred to a psychiatric clinic. I will now describe treatment procedures used in hospitals, detention homes, court clinics, and long-term residence centers, both public and private.

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1. Curran, F. J., and Schilder, P.: A Constructive Approach to the Problems of Childhood and Adolescence, J. Crim. Psychopath. 2: 125-142 (Oct.) 1940; 2: 305-320 (Jan.) 1941.

HOSPITAL WARD FOR DELINQUENTS

I served as a psychiatrist at Bellevue Hospital in New York City from January, 1932, until November, 1945. The psychiatric department of this hospital, in the early 30's, had no special ward for adolescents. Adult delinquent men were put on a prison ward, while juvenile delinquents sent from the courts for observation were placed on "quiet," "semidisturbed," or "disturbed" wards with adults. In 1937, when Dr. Karl M. Bowman was the director of Bellevue, a special ward for adolescent male patients was opened and I was put in charge of this service. This ward handled boys ranging in age from 12 to 16. In New York State, the upper range for juvenile delinquents is 15. The majority of these boys were court cases, although, occasionally, a nondelinquent was admitted because of severe neurotic or psychotic symptoms. The usual ward population was 50 to 60 boys, and the majority remained 30 days.

The majority of juvenile delinquents are not psychotic, psychoneurotic, psychopathic, or mentally defective. The largest percentage are "normal" delinquents, with little overt anxiety. Frequently they come from broken homes or from culturally and economically deprived backgrounds; many have parents or siblings who have criminal records. It was my impression that the majority of the adolescent delinquents sent to Bellevue Hospital were not of psychopathic make-up and could be salvaged if they were given a combination of individual and group therapy. My previous experiences in dealing with these adolescents on other wards of Bellevue Hospital from 1932 to 1937 made me feel optimistic about helping these youngsters, if they were on a closed service and one could have an opportunity to get beyond their facade of defiance, indifference, or distrust.

With the aid of the board of education, two regular school classes, one an ungraded class and one technically known as an "opportunity class," were established. We also secured a remedial teacher to work with children having reading and arithmetic disabilities. Through the Works Progress Administration, we secured staff for various group activities, including music projects, art classes, dramatic projects, magic activities, athletic programs, and beadwork. Descriptions of the organization of the ward and of the various group activities are published elsewhere.[1] Each child was given a thorough physical and neurological examination; a routine blood Wassermann test and routine roentgenogram of the skull were obtained. Each patient was given a battery of intelligence and projective tests. Each had individual as well as group

psychotherapy. Attempts were made for the resident or the staff psychiatrist to work with the parents. At times the parents refused to cooperate or they were not available because of such factors as illness or death. A detailed probation investigation was made and supplied us by the courts.

About 7% of the delinquents appearing in New York City Children's Courts were sent to us. These represented: (1) those who had been repeatedly placed on probation and who continued in their antisocial behavior; (2) those involved in sexual delinquencies; (3) those who were obviously mentally defective as well as delinquent, whose parents would not sign requests for commitment to institutions for the mentally defective, and who were sent to Bellevue Hospital in order to be committed to such an institution through the state Supreme Court; and (4) those committing unusually serious delinquent acts, such as murder. Within a six month period we admitted four boys under 16 years of age who were accused of murder. In our initial individual psychiatric sessions with these boys, we frequently found them to be hostile, defiant, and unreliable. They usually admitted only those delinquencies already reported to us by the courts. They claimed that they had a good relationship with their parents and relatives. They were evasive when questioned about neurotic or psychotic symptoms or about delinquencies other than those for which they had been apprehended. Each patient was assigned to various group activities, including school, athletic programs, art class, dramatic programs, and group discussions on such subjects as sex and discipline. A stenographer was usually present at these group conferences to take verbatim statements. Even those who said they wouldn't talk and who warned others not to talk because of the note taking would almost invariably participate actively within a few minutes after the beginning of a group discussion.

In the drama project, for example, boys were asked to write plays, to select their own casts, and to produce plays before the entire ward personnel. They usually adapted plays from movies or stories they had seen or read, and the titles included: "Crime Does Not Pay," "Framed," "Stool-Pigeon," and "Double Crossed." The boys played both male and female roles. After each play, a group discussion was held. The author and actors were complimented by the group leader. The author was then asked the source of his material. Then questions were put to the audience as to whether or not they felt the play was true to life. Such questions as those following were asked: "Do mothers act the way this mother did?" or "Do all boys treat their sisters the way he did?" or "This father drank; do most fathers drink?" or "If you were going to write this play, would you make any changes? If so, what changes?" The children found outlet for their aggression in acting in the plays and in participating in the discussion afterward. Identification and projection mechanisms were clearly seen in the plays, and through the plays the children acted out such problems as sibling rivalry or feelings of parental rejection. Atonement of guilt was made possible in the plays by the characters being killed, imprisoned, or tortured physically or mentally. "Third degree" scenes occurred frequently in plays written by these boys. Moreover, as a result of free discussion of previously forbidden or unmentioned topics, the children, by hearing others express their views concerning hate, fear, sadism, and destruction, and by acting out their castration fears and sexual problems, lost, to a great extent, their fears and anxiety. Often for the first time they learned that they were not solitary sinners but had feelings, temptations, and desires that the majority of human beings have. In the course of discussion, the children spontaneously brought up more intimate problems such as those dealing with interpersonal situations in the hospital, court problems, and school and home troubles. They freely admitted aggressive behavior that they had often previously denied when interviewed alone by the psychiatrist. This is a method of group catharsis.

In the art project, the boys worked in groups of four to eight, under the supervision of an art teacher. They used various mediums, such as pencil, crayon, and water color, and were informed they could draw anything they wished. At the same time, they were encouraged to talk not only about their art work but about anything that interested them; they could talk about other patients or about the personalities of the physicians, nurses, or other staff members. They were permitted to discuss their own attitudes toward such persons as teachers, policemen, or gangsters. Considerable diagnostic material was obtained from the art productions as well as from the discussion. The group discussions also aided the patients in getting rid of a great deal of their aggressiveness and guilt feelings through the talks and through the drawings. Inasmuch as sexual problems, preoccupations, fantasies, and misconceptions are of great concern to adolescents, we also set aside time for conferences about this special topic. This project, which has been described elsewhere,[2] was found to have diagnostic, therapeutic, and pedagogic value.

A statistical study of 1,626 adolescent boys admitted to the Bellevue Hospital Adolescent Ward in the three year period 1937 to 1940 was made by Deibel and myself.[3] About 63% of these boys were diagnosed as having primary conduct disorder, 8% were diagnosed as having psychopathic personalities, about 20% were labeled as mentally deficient, 8% were considered to have psychoses, such as schizophrenia, postencephalitis, or post-traumatic psychosis, and 1.1% had psychoneuroses. The high incidence of mental deficiency was due to a special situation in New York City and does not represent the actual incidence of mental deficiency among delinquents, which is about 3 to 5%.

FOLLOW-UP STUDIES

Follow-up studies of juvenile delinquents have indicated that these persons continued to be delinquent in from 35% to 88.2% of cases. For example, a study by Shimberg and Israelite [4] of 50 intellectually average and 50 mentally defective recidivists and of 26 average

2. Curran, F. J.; Strauss, B. V., and Vogel, B. F.: Group Sex Conferences as a Diagnostic, Therapeutic and Pedagogic Method, J. Crim. Psychopath. 5: 289-303 (Oct.) 1943.

3. Curran, F. J., and Deibel, A.: A Statistical Study of Adolescent Delinquents in Bellevue Hospital, J. Crim. Psychopath. 3: 32-40 (July) 1941.

4. Shimberg, M. E., and Israelite, J.: A Study of Recidivists and First Offenders of Average and Defective Intelligence, Am. J. Orthopsychiat. 3: 175-180 (April) 1933.

and 26 defective first offenders at the Judge Baker Foundation in Boston revealed that 66% of the intellectually average and 70% of the defective recidivists were failures and that 35% of the intellectually average and 39% of the defective first offenders were failures. Healy and Bronner,[5] dealing with youthful recidivists in Chicago, reported 61% failures. The Gluecks[6] studied 1,000 juvenile delinquents in Boston; they ranged in age from 6 to 17 years, with the mean age of 11 years and 11 months. Of the 923 persons whose records during the five year post-treatment period were known, 88.2% had continued their delinquencies. Carroll and I[1] did a follow-up study of the first 300 persons in court cases who were admitted to the adolescent ward at Bellevue. This study was done between 18 and 27 months after the 30 day treatment period in the hospital. The judges had followed our recommendations in 85.66% of the cases. We had recommended that 128 be placed on probation, that 62 be sent to correctional institutions, that 79 be sent to state schools for the mentally defective, and that 16 be sent to state hospitals and the rest to such institutions as those for neglected children or tuberculosis sanatoriums. The follow-up study revealed that 201 were at home, 47 in state schools, 32 in correctional institutions, 7 in state hospitals, and one in an epileptic colony; 2 had died, the whereabouts of 4 were unknown, 2 were awaiting sentence in adult courts, and 4 had special placements in foster homes or medical institutions. In other words, of these 300 persons involved in court cases, 67% had made a good adjustment in the community, and only 10.66% had future court appearances because of antisocial behavior.

DETENTION HOMES

After I left Bellevue Hospital and went into private practice in New York City, I worked on a part-time basis at Youth House, the New York City Detention Home for Boys. Here, all of the boys facing court action in the Children's Courts of New York City are held, if they cannot be trusted to the custody of their parents or guardians. Frank J. Cohen, the director, had organized a worthwhile program for child care, using the services of teachers, recreational workers, nurses, a pediatrician, psychiatric social workers, a clinical psychologist, and a part-time psychiatrist. Inservice training was provided. This program was begun in April, 1944. Inasmuch as the children are in this detention home 24 hours a day, a definite program around-the-clock is planned, with schooling, recreation, religious guidance, medical examinations, and work assignments. A Youth House Council made up of 16 boys meets weekly with the director. These 16 boys are elected by the youngsters, and they discuss topics suggested by their co-delinquents. They elect their own chairman and vice-chairman, and they appoint various committees, such as the reception committee, to serve as hosts to visitors; the tours committee, to check with a member of the administrative staff about the physical structure of the building, including cleanliness and property maintenance; a food committee; and a recreation committee.

In a setting such as this, a boy who has his first contact with the court as a delinquent finds a therapeutic atmosphere, not only to help him work through his anxiety or panic on the first separation from his home, but also to give him an opportunity to have psychiatric treatment or casework help for himself and/or his family. Such a detention home is in marked contrast to most detention homes or lock-ups. It is the experience of many youthful offenders that they are put in jails with adult criminals while awaiting a decision about their disposition in a juvenile court. Such a procedure can hardly be considered preventive or therapeutic.

COURT CLINIC TREATMENT FACILITIES

Although many juvenile court judges wish to avail themselves of psychiatric services, there are few psychiatric clinics that are an integral part of such courts. Consequently, the judge has to refer a child to a private practitioner or to a psychiatric clinic or hospital miles, in some cases hundreds of miles, from the court. Frequently the communication between the court and the psychiatric hospital or clinic is unsatisfactory; the judge is unhappy or bewildered by the reports submitted to him through the mails. The psychiatrist often uses technical terms and may reach an opinion about the child's psychiatric status without having available to him probation data known to the judge. The recommendation of the physician, who lacks some of the probation data about the child and his family, may seem inappropriate to the judge, who has different information. In addition, it should be pointed out that the judge frequently has a different attitude toward delinquents in general than does a psychiatrist. This situation often leads to frustration, annoyance, and misunderstanding between members of the legal and medical professions. A survey[7] made a few years ago indicates that, as of 1950, there were only 11 official psychiatric clinics attached to juvenile or domestic relations courts in the entire United States. In these few clinics, treatment as well as diagnostic procedures is usually attempted. Recent experiences have been reported[8] with group therapy techniques both at admission and in follow-up treatment of the delinquent child and his parents.

LONG-TERM RESIDENCE TREATMENT

Another organization dealing with the treatment of adolescents who have been in legal difficulties is the George "Junior Republic" at Freeville, N. Y. This is an organization dedicated to service of boys and girls between the ages of 13 and 19 who are in need of special guidance. It has been in existence since 1895 and has worked with both delinquent and nondelinquent adolescents. The program is run on a year-round basis, and the children are expected to remain about two years. There is a student self-government body, with monthly "town meetings" and annual election of officers. There is a regular court and a juvenile court for citizens under 13. There is a regular junior and senior high school, a

5. Healy, W., and Bronner, A. F.: Delinquency and Criminals, Their Making and Unmaking: Studies in Two American Cities, New York, the Macmillan Company, 1926.

6. Glueck, S., and Glueck, E. T.: One Thousand Juvenile Delinquents: Their Treatment by Court and Clinic, Cambridge, Mass., Harvard University Press, 1934.

7. Curran, F. J.: Psychiatric Court Clinics for Children and Juveniles, Quart. J. Child Behav. 2: 32-37 (Jan.) 1950.

8. Peck, H. B., and Bellsmith, V.: Treatment of the Delinquent Adolescent: Group and Individual Therapy with Parent and Child, New York, Family Service Association of America, 1954.

part of the New York State education system. There is a vocational program, featuring "learning by doing," and every "citizen" is expected to work, in addition to attending school. I had an opportunity to spend a few days at the "Junior Republic" in 1952 and had previously referred many adolescent delinquents there. I have seen many bewildered adolescents benefit from this program, which seeks to train young people in the responsibilities of citizenship and to prepare them for "mature creative living in a democratic society." In all of these treatment procedures, whether it be in a child guidance clinic, a special ward of a psychiatric hospital, or the "Junior Republic," the delinquents are handled on a teamwork basis by professional persons of various disciplines. Sociologic, economic, emotional, and intellectual factors are considered and dealt with.

REFORMATORIES

There is an old cliché, "Reformatories do not reform." Statistics show a high recurrence of recidivism in those persons released from reformatories. In many of these correctional institutions the emphasis is placed on conformity or punishment. Psychologists and psychiatrists are rarely used except for diagnostic evaluation, usually to pin a label on a person who is not conforming, so that he can be transferred to an institution for the feeble-minded or the mentally ill. An interesting article has been written by William and Joan McCord, entitled "Two Approaches to the Cure of Delinquents." [9] They compare a progressive, private training school, the Wiltwyck School for Boys, and a typical public reformatory, the "New England School for Boys." Follow-up studies of the children in the two schools reveal a significantly higher reformative rate (71%) for the Wiltwyck School as contrasted with 53% for the New England School. They used reappearance in court as criterion of failure. Wiltwyck bases its treatment on a policy of nonpunishment. The children are allowed to express their pent-up bitterness and antagonism in a permissive atmosphere. The boys elect representatives to manage current problems. There is an intensive program of individual, group, and art therapy for all of the boys. In the New England School, the treatment program emphasizes formal education and firm discipline. No student government exists.

In the Wiltwyck School, the staff consists of a psychiatrically trained resident director, an assistant director (social worker), four psychiatric social workers, the psychiatrist, the counselors, six teachers, an art therapist, and a music therapist. All the staff members are college graduates, and many have a master's degree. After an average residence of 18 months, the boy returns to New York and to the Wiltwyck after-care center in the city. Three psychiatric social workers counsel the parents and the boy in the establishment of a new relationship. If the family situation remains hopeless, Wiltwyck finds a receptive foster home or private school for the boy. Although all of the boys at Wiltwyck are toughened delinquents and 60% are diagnosed as being preschizophrenic, 70% of them do not return to court within five years after discharge. In the New England School, there is only one psychologist, who administers I. Q. tests to all newcomers; she gives sporadic counciling to one-third of the boys. The staff is composed predominantly of grade and high school graduates. In 90% of the cases, the New England graduate returns, on release, to the same home environment that precipitated his antisocial acts. The McCords state, "The miracle of the reformatory is that a handful of ardent staff members has presumably managed to reform 53% of the boys. The New England School, neither better nor worse than the average American training school, typifies the methods (and success) of firm discipline."

Other reformatories, using modern-day psychological approaches to the problems of juvenile delinquents, have also been successful. I refer now particularly to two institutions where children of both sexes are treated simultaneously, namely, Ormsby Village in Louisville, Ky., and Hawthorne-Cedar Knolls School at Hawthorne, N. Y.[10] At the latter institution there were only 27% recidivists in a five year follow-up study of male delinquents. The American Psychiatric Association has recently published a guide for the planning of clinic facilities, entitled "Training Schools for Delinquent Children." [11] This booklet emphasizes treatment rather than punishment and stresses the need for an over-all program of a child guidance clinic team, of an academic program, vocational program, recreation and group work, medical care, and the use of chaplains for religious counseling.

THE CHICAGO AREA PROJECT

There is another area of preventive work that I should like to mention briefly. I refer to the Chicago Area Project and to the Cambridge-Somerville Youth Study, in which attempts are made to work in delinquent areas of larger cities, to spot the predelinquent, to help him, and to attempt to prevent the occurrence of overt delinquent behavior. The Chicago Area Project, in operation since 1932, has been directed by Clifford R. Shaw, head of the department of research sociology at the Institute for Juvenile Research. Sociologic studies had revealed that in large cities there were areas where large groups of delinquents lived. Through the Chicago Area Project,[12] attempts are made to set up coordinated programs of recreational activities, athletic programs, handicraft shops, and game rooms in parks, churches, and storefront centers in these delinquency areas. Persons living in these sections are enlisted to initiate and carry out these programs with the technical and financial assistance of the area project. Committees of citizens are organized to work with such persons as school and housing authorities. Local persons are employed as truant and parole officers. By the use of persons known to the delinquents and their families, much can be done to improve recreational, educational, economic, housing, and other conditions, and to eradicate some of those factors contributing to juvenile delinquency. Moreover,

9. McCord, W., and McCord, J.: Two Approaches to the Cure of Delinquents, J. Crim. Law, Criminol. & Police Sc. 44: 442-467 (Nov.-Dec.) 1953.

10. Black, B. J., and Glick, S. J.: Recidivism at the Hawthorne-Cedar Knolls School, Research Monograph no. 2, New York, Jewish Board of Guardians, 1952.

11. Training Schools for Delinquent Children, Washington, D. C., American Psychiatric Association Mental Hospital Service, 1952.

12. Shaw, C., and McKay, H. I.: Juvenile Delinquency and Urban Areas, Chicago, University of Chicago Press, 1942, pp. 435-436.

because these workers are known to the delinquents and their parents, they secure better cooperation in prevention and rehabilitation projects.

THE CAMBRIDGE-SOMERVILLE YOUTH STUDY

In the Cambridge-Somerville Youth Study,[13] Powers and Witmer describe the results of an experiment in the prevention of delinquency by giving personal advice and guidance through paid workers. The majority of these were caseworkers; some were nurses. Two groups of boys were matched. The tested groups were to receive aid from a counselor, while the control groups were not. Some of the boys were delinquent, and others were not. Some became delinquent during the period of study. The study, which lasted several years, showed that this type of procedure alone could not accomplish much in the way of preventing chronic delinquency, but it was of help in milder cases.

It is my opinion that the majority of juvenile delinquents can be greatly helped if their parents are cooperative and if the initial resistance and suspicion of the adolescent can be overcome. Often a period of time in a confined ward of a hospital is necessary to effect this change of attitude, following which outpatient treatment may be expected to be successful. Parents or other significant members of the patient's family also need to be treated, and this requires the service of skilled caseworkers, probation officers, or of psychologists, psychiatrists, or others working on a collaborative basis. In some instances, my staff and I have been successful in working with persons on an outpatient basis alone, when the authoritarian approach was used to ensure the attendance of the delinquent and his parents. Terms of probation included regular attendance at the clinic. I mention this point because many feel that psychotherapy is doomed unless the person and his family want help and seek it themselves. My experience indicates that many adolescents are happy to feel compelled to come for treatment. Often they desire treatment but fear they will "lose face" with their friends if they voluntarily see a "nut doctor." They can complain to their friends about the judge and/or the psychiatrist, but they do come and do participate in treatment. As a rule, the parents in such cases are less cooperative than their children in the treatment process.

It should be stressed that there is no single cause of juvenile delinquency and, therefore, no single type of therapy. Modification of environmental situations, changes in attitudes, and correction of physical and educational defects, as well as psychotherapy, are indicated. It is well known that many children in a family come from the same broken home and live in the same slum area and yet not all of the children become delinquent. Also, many delinquents come from homes where the parents are living together, where the economic status is satisfactory, and where there appear to be no gross physical or psychological defects in the child and yet he shows antisocial behavior. It is therefore necessary to consider the child and his environment. It is not an either/or proposition, that is, psychiatric or sociologic, but it is a combination of individual psychiatric factors as well as sociologic factors.

13. Powers, E., and Witmer, H.: An Experiment in the Prevention of Delinquency: The Cambridge-Somerville Youth Study, New York, Columbia University Press, 1951.

SUMMARY AND CONCLUSIONS

Much preventive work, as well as early treatment, can be done by using the citizens of the community who are aroused by the increase in delinquency and who want to do something about it. Through the cooperation of professional and lay groups (psychiatric clinics, hospital personnel, mental hygiene groups, civic organizations) many communities have organized programs to attack this problem. Study groups, action groups, parent education workshops, and volunteer groups working with the police, recreational workers, and court officials can do and are doing much to improve the conditions in the "delinquent areas" from which the largest number of delinquents come. Such citizen groups can stimulate the organization of court clinics, child guidance clinics, and other facilities to work with the delinquent and the predelinquent.

The value of working with children in psychiatrically oriented correctional institutions and in closed wards of psychiatric hospitals has been stressed. Similar services should be provided throughout the country. It is quite true that such treatment services are expensive and that professional personnel are not always available. Efforts are being made to train more workers. If the adolescent delinquents do not receive the proper therapy, 70% to 80% will be expected to continue in their antisocial careers. It has been estimated that each normal person represents a potential of $30,000, i. e., if he works and is normally productive, he will contribute this much to the economy of his culture, through taxes and other contributions. If he persists in his delinquencies, he becomes a liability, and society has to pay large sums to keep him in an institution. Moreover, when he is out of jail, between prison sentences, he is rarely gainfully employed, and he continues to prey on society with his stealing, assaultive, or destructive behavior.

Can we afford not to provide the type of treatment procedures and institutions that will rehabilitate the majority of juvenile offenders? If we continue, as we have in the past, to merely lock up youngsters, we can expect a definite increase in our criminal population, both juvenile and adult. Physicians have the responsibility of letting citizens know what can be accomplished if the knowledge and the skills we have are used and if we attack the sociologic, economic, medical, and psychiatric problems by using the service of lay and professional groups. Physicians should aid in the formation of special locked wards in psychiatric hospitals and state mental hospitals where intensive individual and group treatment can be given to adolescent delinquents. At the same time, environmental manipulation and therapy with parents should be attempted.

It is my conviction that a high percentage of juvenile delinquents can be salvaged if one uses a combination of individual and group therapy in special wards of psychiatric and state hospitals and in psychiatrically oriented reformatories. Such a program should also include work with the parents. It is important to stress that each de-

linquent must be considered as a person, as well as a member of the group. The dynamics of the individual delinquent are often conditioned by the attitudes of his parents. The sociological factors contributing to the problems of the child and his parents must be given considerable weight. Lastly, in my opinion, the teamwork approach, whether it be in a clinic, a hospital setting, or in a correctional institution, points the way to the most successful form of treatment known at present for the individual delinquent as well as for members of his family.

DIAGNOSIS OF HIATUS HERNIA ON PLAIN ROENTGENOGRAMS OF THORAX AND ABDOMEN

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A very extensive literature has accumulated on the subject of hiatus hernia. Numerous reports have emphasized the importance of the entity, particularly in view of the fact that in many instances signs and symptoms are referred to the anterior chest rather than to the abdomen,[1] and patients are treated for long periods of time with diagnoses of heart disease and other serious lesions before a correct diagnosis is made. Roentgen methods of diagnosis by use of the opaque meal are well established and in common use [2]; however it is not generally realized that the diagnosis of this condition can be made in many instances without the use of the barium meal, although references to this subject occur in the literature. Among others, Teplick and Macht [3] mention the fact that hiatus hernias can be suspected in some instances on miniature chest roentgenograms, and LaPointe [4] has reported six cases of diaphragmatic hernia in which the diagnosis was first suggested from roentgenograms of the chest. In view of the widespread use of photofluorographic chest surveys and the increasing use of roentgen study of the lungs and heart on patients admitted to hospitals, it is of particular importance that physicians recognize the roentgen appearances through which hiatus hernia can be seen on plain roentgenograms of the thorax and abdomen.

An esophageal orifice hernia or hiatus hernia is a protrusion of a portion of the stomach through the esophageal opening of the diaphragm into the thorax. The esophageal orifice lies in the muscular part of the diaphragm slightly to the left of the midline at the level of the ninth dorsal vertebra. It is above, to the left of, and anterior to the aortic opening and to the left of and posterior to the foramen for the vena cava. Hiatus hernia is characterized by the fact that the herniated segment of the stomach is retrocardiac in position. The size of the lesion depends on the width of the aperture in the diaphragm, the degree of intra-abdominal tension, the amount of fluid and gas in the stomach, the position of the patient, and other factors. The hernia is likely to reduce itself partially or completely with the patient upright, and as a rule it is largest when the patient is lying down. Hiatus hernias may be of four types. 1. The type in which the lower end of the congenitally short esophagus lies at the apex of a thoracic stomach. This type is uncommon; in most cases, the esophagus is not actually short and operative restoration to an anatomically normal position is possible.[5] 2. The sliding type, in which one wall of the peritoneal sac lining the hernia consists of an abdominal viscus; the segment of the stomach herniated through the esophageal hiatus and a pouch of peritoneum form the anterior and lateral surfaces of the sac, and the anterior wall of the stomach forms the posterior portion. 3. The paraesophageal or parahiatal type, in which the cardia may remain below or at the level of the diaphragm. The remainder of the stomach ascends into the mediastinum, producing the so-called upside-down stomach, with the media at a higher level than the cardia, the duodenum in close relation to the cardia, the duodenal bulb directed caudally, and the duodenal loop uncoiled. 4. A combination of the congenitally short esophagus with thoracic stomach and the sliding type of hiatus hernia. Determination of the type of hernia is not always possible from the plain roentgenogram.

In our clinic it has for a long time been appreciated that hiatus hernia frequently can be diagnosed on the plain film. In attempting to determine the criteria on the basis of which a diagnosis of hiatus hernia can be established without the use of contrast mediums, we reviewed the roentgenograms of all patients known to have hiatus hernia. Repeated studies were made on many of these patients; these included roentgenograms of the chest and abdomen in the anteroposterior, posteroanterior, oblique, and lateral projections, with the patient both upright and recumbent, and roentgenograms made with and without the Bucky diaphragm. When the diagnosis is indicated on the plain roentgenogram, a normal barium meal study should not be accepted as final, but the examination should be repeated with special maneuvers to demonstrate the presence of a hernia. It is our experience that in an institution such as the Boston City Hospital careful study of all roentgenograms of the chest and abdomen will reveal two or more cases of hiatus hernia every week.[6]

DIAGNOSTIC FEATURES

In order to establish the diagnosis of hiatus hernia, it is essential that the radiographic studies of the thoracic or abdominal region include the diaphragm and the retro-

From the Department of Radiology, Boston City Hospital (Dr. O'Connor and Dr. Ritvo), and from Harvard Medical School (Dr. Ritvo).

1. Ritvo, M., and Shauffer, I. A.: Gastrointestinal X-Ray Diagnosis, Philadelphia, Lea & Febiger, 1952, pp. 766-785.
2. Ohler, W. R., and Ritvo, M.: Diaphragmatic (Hiatus) Hernia: A Clinical Study, New England J. Med. **229**: 191, 1943.
3. Teplick, J. G., and Macht, S. H.: Right-Sided Thoracic Stomach, Am. J. Roentgenol. **58**: 196-202, 1947.
4. LaPointe, H.: Diaphragmatic Hernia, J. Canad. Assoc. Rad. **2**: 65, 1951.
5. Sweet, R.: Analysis of 130 Cases of Hiatus Hernia Treated Surgically, J. A. M. A. **151**: 376 (Jan. 31) 1953.
6. Hiatus Hernia, editorial, J. A. M. A. **141**: 203 (Sept. 17) 1949.

cardiac space. Roentgenograms of the chest, ribs, sternum, dorsal spine, abdomen, lumbar spine, urinary tract, and gallbladder may suffice to demonstrate the lesion. As in every type of roentgen study, it is essential to study the radiographic anatomy in complete detail. Every shadow on the roentgenogram must be identified, particular attention being paid to the region of the esophageal hiatus. In the sagittal projection, the descending thoracic aorta, the paravertebral soft tissues, the heart, the medial

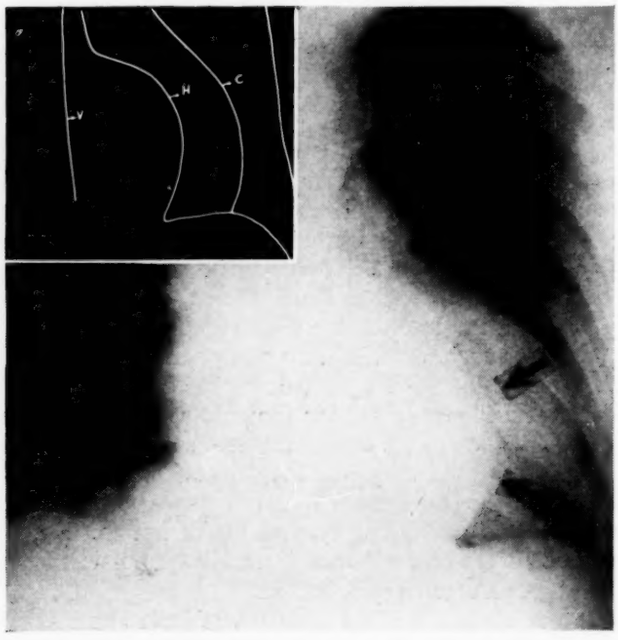

Fig. 1.—Posteroanterior roentgenogram of the chest; the hiatus hernia is visualized as a rounded area of increased density overlying the shadow of the heart (arrows). Inset, sketch of roentgenogram, showing C, cardiac border; H, heart border; and V, vertebral border.

costophrenic sulci, and the vertebrae must be observed. The size, shape, and position of the gastric gas bubble should be noted. In the lateral projection particular attention must be directed to the retrocardiac space, the posterior cardiac border, the diaphragm, the vertebrae, and the descending thoracic aorta. The chest roentgenogram, to be satisfactory, should demonstrate the dorsal spine and the bronchovascular markings of the posteromedial aspect of the lower lobe of the left lung within the cardiac silhouette. Roentgenograms made with the Potter-Bucky diaphragm may afford clearer detail of this region.

On the posteroanterior or anteroposterior chest roentgenogram, a small hiatus hernia is superimposed on the cardiac shadow, usually slightly to the left of the lateral border of the vertebrae and above the "V" formed by the medial costophrenic sulci. It is visualized as a rounded or ovoid shadow of uniform soft tissue density if filled with fluid or as an area of radiance if filled with air. With the patient upright, the herniated portion of the stomach may present an air-fluid level. If the hernia is large, the changes may extend both to the left and to the right of the spine; if it is very large, changes may be visible beyond the margins of the cardiac border. The stomach "gas bubble" under the left leaf of the diaphragm is absent. The lateral view shows the hernia in the region adjacent to the posterior cardiac margin and the diaphragm. Large hernias may extend superiorly to the level of the carina and posteriorly to the dorsal vertebrae. Small hiatus hernias often are not demonstrated in the frontal projection. The lateral roentgenogram of the chest is indispensable in the localization and evaluation of hiatus hernias and should be used routinely. When previous roentgenograms are available, changes in the manifestations may afford important data with regard to hernia, particularly as regards reducibility.

Significant roentgen manifestations may also be present in the region below the diaphragm. The absence of the stomach "gas bubble" in its usual position is particularly significant. Evidence of a hernia is afforded by a vertical or oblique area of radiance overlying the upper lumbar vertebrae; this appearance is caused by the displacement upward and medialward of the media and antrum of the stomach in association with the hernia. If the stomach is well distended with gas, the fundus may present a truncated appearance rather than the usual ovoid form. A rounded supradiaphragmatic shadow associated with an aerogram of the gastric media lying in an elevated and medial position comprises one of the most typical manifestations of hiatus hernia. If the roentgenogram of the abdomen does not include the region of the esophageal orifice, the demonstration of a medially placed stomach "gas bubble" may be accepted as presumptive evidence of hiatus hernia, particularly in the absence of splenomegaly, gas in the splenic flexure of the colon, or a retroperitoneal mass.

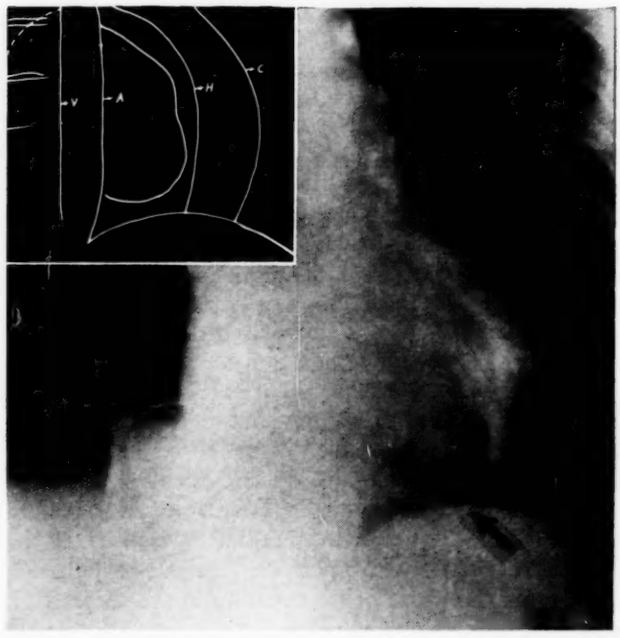

Fig. 2.—Posteroanterior roentgenogram; the herniated segment of the stomach is distended with gas and is visualized as an area of increased radiance overlying the heart shadow (arrows). Inset, tracing of roentgenogram, showing A, aorta; C, cardiac border; H, hiatus hernia; and V, vertebral margin.

The manifestations described above occur in sliding and paraesophageal hiatus hernias. A large retrocardiac density or air-fluid level extending the entire width of the heart shadow occurs in the paraesophageal type of hiatus hernia. With the patient upright, the presence of two adjacent paravertebral air-fluid levels in the sagittal projection and overlapping air-fluid levels in the lateral

projection indicate an "upside-down" stomach with two loculi. In the lateral recumbent projection, the hernia may be manifested by the presence of bilocular retrocardiac shadows with associated central radiance in the region adjacent to the diaphragm. The smaller posterior shadow usually represents the cardia and the larger the media of the stomach (fig. 3).

In large hiatus hernias, especially of the paraesophageal type, the splenic flexure of the colon frequently is herniated also. This is manifested by the fact that, superimposed on the changes indicative of hiatus hernia, there also is a group of mottled densities with characteristic haustral markings in the supradiaphragmatic region. In the lateral projection, the colonic gas shadow overlies the midportion of the diaphragm, usually anteriorly to the herniated stomach. The splenic flexure of the colon in the hernial sac may comprise the greater portion of the roentgenographically visible densities. When the colon is distended with gas, the changes extend to the lateral chest wall and simulate eventration of the diaphragm or assume the form of two arcs convex superiorly rather than the usual solitary smooth arch formed by the diaphragm. The presence of finely mottled density overlying the heart and the midportion of the diaphragm indicates the presence of impacted feces in a herniated splenic flexure. In one case, this occurred in obstruction of the rectosigmoid with subsequent colonic perforation. The presence of impacted feces in a herniated splenic flexure may therefore constitute an indication for surgical intervention. The spleen and pancreas may lie within the hernial sac and appear as an area of homogeneous density, usually adjacent to the left lateral aspect of the herniated segment of the stomach.

DIFFERENTIAL DIAGNOSIS

Soft Tissue Densities Without Air Inclusion.—The most common cause of an area of uniformly increased density in the paravertebral region of the lower thorax is hiatus hernia. A paravertebral abscess in the dorsolumbar region may result in a smooth, ovoid area of increased density. This is usually caused by tuberculosis of the spine and is associated with characteristic changes in the adjacent intervertebral spaces and vertebral bodies. Mottled calcification frequently occurs in the abscess. An aortic aneurysm may appear as a rounded or fusiform area of increased density in the retrocardiac area. Linear or plaque-like areas of calcific density in the wall of the aneurysm and erosion of the contiguous dorsal vertebrae are characteristic of this condition. The shadow produced by a dilated, tortuous thoracic aorta usually extends superiorly to the aortic arch. An enlarged left atrial shadow appears as an ovoid density centrally. This is associated with a rheumatic cardiac deformity and, in many instances, with congestive changes in the lungs. The left atrial shadow usually lies well above the level of the diaphragm, and only in extreme degrees of left atrial enlargement is the retrocardiac space completely obliterated. There is no demarcation of the shadow from the posterior cardiac border as with hiatus hernia. A benign neoplasm of the lower esophagus, such as a leiomyoma or cyst, may present an appearance somewhat similar to that in hiatus hernia. The absence of an air-fluid level on roentgenograms made with the patient in the upright position and the demonstration of a stomach "gas bubble" under the left diaphragm exclude the diagnosis of hiatus hernia.

Mediastinal effusion, empyema, or enlarged lymph nodes in the left lower thoracic region may be manifested by an area of increased density paravertebrally and by blunting of the medial costophrenic angle. The associated cardiomegaly and pulmonary changes favor the diagnosis of effusion. Lobulation of the lateral border of the density is usually present in enlargement of the para-aortic lymph nodes. The pleura of the superior mediastinum may be thickened and elevated by infiltrating bronchogenic neoplasm involving the paratracheal lymph nodes. Malignant lymphoma and retroperitoneal or gastrointestinal neoplasm may produce similar changes in the posteroinferior mediastinum. A tumor of the sympathetic or spinal nerve ganglions is manifested as a sharply circumscribed, unilateral, rounded, or ovoid area of density. The neurofibromas are often associated with destruction

Fig. 3.—Opaque meal study, same patient as in fig. 2, oblique projection; the greater portion of the stomach lies in the thoracic cavity.

of the pedicles and bodies of the neighboring vertebrae. Pneumonitis, bronchiectasis, pulmonary infarction, bronchogenic carcinoma, and other pulmonary diseases may involve the posterior and anteromedial basal pulmonary segments of the lower lobe of the left lung and present an area of paracardiac density confluent with the aortic and paravertebral pleural reflection. The segmental distribution and associated parenchymal disease differ from the midline and retrocardiac density of hiatus hernia and usually permit of differentiation. An arteriovenous fistula may form a rounded density in the lower lobe of the left lung and overlie the heart shadow. The broad bands comprising the arterial and venous channels extending from the hilus of the lung to the fistula establish the diagnosis. Infrapulmonary pleural effusion may simulate an elevated diaphragm. The gas-containing gastric fundus lies in its normal position well below the level of the supposed diaphragm. Roentgenograms made with the patient in the supine and lateral decubitus positions

may demonstrate a shift in the fluid level. Intralobar sequestration of the lung may appear as a sharply outlined homogeneous mass in the posterior, medial, and inferior portion of the lower lobe. A finger-like projection extending medially and downward to the aorta represents the shadow of an anomalous pulmonary artery from the aorta and suggests the proper diagnosis. Hiatus hernia formation has been described in association with intralobar sequestration of the lung.

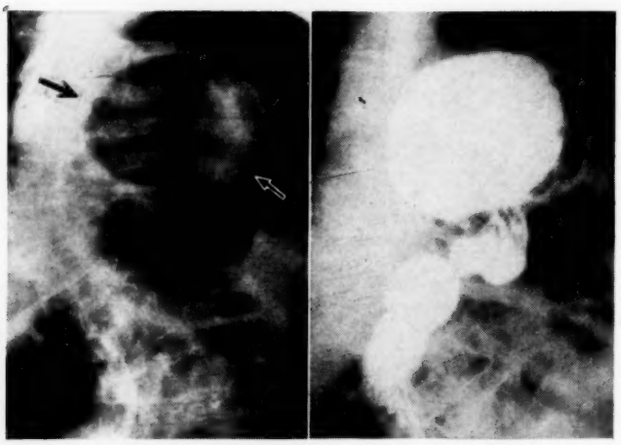

Fig. 4.—*A*, roentgenogram of lower chest and upper abdomen, patient recumbent, showing a large, gas-filled hiatus hernia (arrows). *B*, study of barium-filled stomach, showing the herniated segment.

Soft Tissue Densities with Air Inclusion.—The presence of a parasagittal retrocardiac density containing an air inclusion, particularly with an air-fluid level, is more strongly indicative of hiatus hernia than is a homogeneous shadow. A large epiphrenal diverticulum containing fluid and air may present an air-fluid level in the retrocardiac space parasagittally. Cardiospasm with marked esophageal dilatation may also be confused with hiatus hernia. An opaque meal study may be necessary to exclude these lesions. A lung abscess in the posteromedial portion of the lower lobe of either lung may be superimposed on the cardiac shadow. An abscess has poorly defined margins, often occurs in association with pneumonia, carcinoma, or other pulmonary disease, and usually lies well to one side of the midline. Transdiaphragmatic herniations may occur at Morgagni's foramen or the foramen of Bochdalek. Defects in the diaphragm that are results of trauma or of esophagogastrostomy, vagotomy, or other operations may have an appearance on roentgenograms similar to that of hiatus hernia. Herniation through the foramen of Morgagni presents a dense or mottled shadow at the right cardiophrenic angle anteriorly. The stomach herniated into the thoracic cavity after surgery usually lies to the left of the midline, is posterior in position, and widens the left superior mediastinum. Deformations or defects of the ribs subsequent to operations on the ribs are helpful in the diagnosis of these conditions. A bronchopleural fistula located posteriorly and inferiorly in the left side of the chest may closely resemble hiatus hernia, particularly when an air-fluid level is present. The air-fluid level lies well to the left of the midline, which is not the case in hiatus hernia. The medial and lateral costophrenic sulci may be blunted. Bronchopleural fistula formation as the result of extrinsic trauma such as a stab wound may cause an area of density to the left of the midline. Gastropleurobronchial fistula due to carcinoma of the gastric cardia and colonopleurobronchial fistula associated with peritonitis have been reported. The clinical course and the roentgen manifestations lead to the proper interpretation of the abnormal densities.

Basilar emphysematous blebs present a characteristic picture and as a rule cause no difficulties in differential diagnosis. Cystic cavities may develop in infancy and early childhood after pneumonic consolidation, especially after micrococcic pneumonia. The cysts vary in size, persist for long periods of time, and may closely resemble transdiaphragmatic hernias. A previous history of pneumonia without evidence of symptoms favors pneumatocele formation. Among the rare conditions that may simulate hiatus hernia must be included echinococcic cyst formation. This condition usually involves the base of the right lung. Cyst formation associated with intralobar sequestration of the lung is more common at the base of the left lung, but it may occur on the right side also. In hydropneumopericardium the appearance is similar to that of fluid and air in a herniated stomach. The upper contour of the air shadow within the pericardium usually tapers superiorly in the region of the junction of the pericardium and the great vessels, whereas the superior margin of the stomach filled with air is rounded and widened. Also the fluid level extends laterally beyond the margins of the heart shadow.

Eventration of the Diaphragm.—Eventration of the diaphragm is a congenital or, less commonly, an acquired elevation of one leaf of the diaphragm. It is characterized by aplasia or atrophy of the muscle fibers on the affected side. There is no break in the continuity of the muscle structure. Eventration is manifested by a smooth, linear,

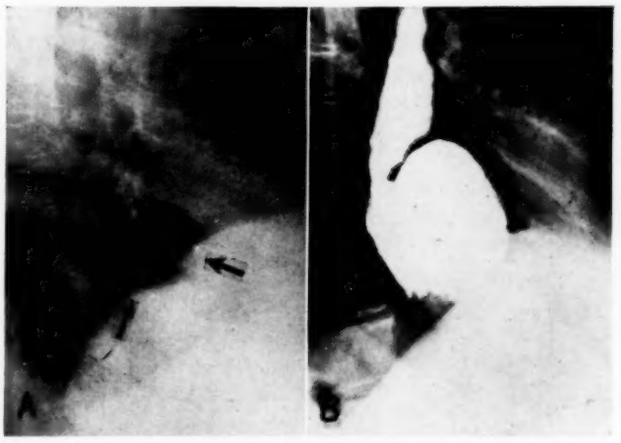

Fig. 5.—*A*, lateral roentgenogram of the chest, patient erect; the herniated segment of the stomach is visualized as an area of increased radiance in the retrocardiac space adjacent to the diaphragm (arrows). *B*, roentgenogram made after the administration of an opaque meal; the esophagus is short; the hiatus hernia is clearly outlined.

convex density extending from the lateral chest wall to the mediastinum in the sagittal projection and anteroposteriorly on the lateral roentgenogram. The diaphragmatic movements may be normal, decreased, absent, or paradoxical, and displacement of the heart and mediastinum to the contralateral side may occur. Differentiation of eventration and hernia is not always possible by roentgen methods; laparotomy may be necessary. Herniation

of the splenic flexure of the colon and hypertrophy of the wall of a herniated stomach may resemble closely an eventrated diaphragm. The presence of an apparent elevation of the left leaf of the diaphragm with a wide midline air-fluid level may be considered to represent a paraesophageal hiatus hernia, probably associated with herniation of the splenic flexure of the colon. Congenital absence of the hemidiaphragm closely simulates eventration and hiatus hernia. A midline air-fluid level establishes the diagnosis of hernia.

SUMMARY

Early and accurate diagnosis of hiatus hernia is of great importance, as the condition may be confused with coronary disease, gallbladder disease, and other serious lesions. The diagnosis of hiatus hernia by roentgen examination after the administration of opaque contrast material is a well-established procedure, but it is not generally realized that many examples of hiatus hernia can be diagnosed from plain roentgenograms of the chest, ribs, dorsolumbar spine, urinary tract, and abdomen. Recognition of this fact could be particularly helpful in view of the widespread use of the chest roentgenogram in mass surveys and in routine study of patients admitted to hospitals. Knowledge of the criteria for establishing the diagnosis of hiatus hernia from plain roentgenograms of the chest and upper abdomen may often enable the physician to recognize a serious and fairly common lesion that might otherwise remain undiagnosed for a long period of time.

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HYPOTHYROIDISM AND THYROID HYPERPLASIA IN PATIENTS TREATED WITH COBALT

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The polycythemic action of cobaltous salts in animals has led to the investigation of the effect of cobalt in types of anemia not amenable to other therapy.[1] Favorable hematological responses have been reported in the anemia associated with chronic infection,[1b] the anemia of chronic renal insufficiency,[1c] and sickle cell anemia.[2] Thus far the most frequent adverse effects reported have been anorexia, nausea, and vomiting,[3] which appear preventable by the use of enteric-coated tablets.[4] Less frequent side-effects have included flushing of the face and extremities,[1c] rash,[1f] tinnitus and nerve deafness,[1d] substernal pain,[1c] and thrombocytosis.[5] It is the purpose of this report to describe five cases of an additional toxic manifestation of cobalt therapy, namely, thyroid hyperplasia associated with thyroid hypofunction. In the past three years small groups of cases of anemia associated with chronic renal insufficiency and sickle cell anemia have been treated in this institution.[1e] Recently, in two children given cobalt therapy for sickle cell anemia, goiters developed, and biopsies showed thyroid hyperplasia. Subsequently, review of autopsy material revealed that in two additional cobalt-treated patients thyroid glands had been hyperplastic. In order to further establish the role of cobalt in the etiology of goiter, studies of thyroid function were performed in an additional case of sickle cell anemia before, during, and after cobalt therapy (case 3). The case distribution and relevant data pertaining to cobalt dosage are presented in table 1.

Cobaltous chloride was administered by mouth in the form of enteric-coated tablets. In the children the starting dose was 30 or 40 mg. per day; this was raised to 60 to 100 mg. per day in the course of a few weeks. In case 5 the dose was poorly regulated; it was never raised above 40 mg. per day, and the treatment is believed to have been discontinued about 7 to 10 days before the patient's death. The adults received from 60 to 120 mg. per day. Details of dosage are presented in the case protocols; hematological studies on these cases will be reported fully elsewhere.[5a] Study of thyroid function was begun after the patients in cases 4 and 5 had come to autopsy. The 24 hour uptake of radioactive iodine (I^{131}) by the thyroid was determined by the technique of Allen and others.[6] Serum protein bound iodine was determined in case 1 by the method of Salter and McKay,[7] and in subsequent cases by a modification of Chaney's method.[8] Serum cobalt was determined by the method of Sandell.[9] Serum cholesterol determinations were performed in cases 1, 2, and 3, and serum lipids were determined in case 2.

REPORT OF CASES

CASE 1.—A 4-year-old Negro boy with sickle cell anemia was hospitalized for tonsillectomy. Sickling had been demonstrated in October, 1951; hemoglobin levels had varied from 7.5 to 10 gm. per 100 cc. and white blood cell count from 27,000 to

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W. Keith Selvey gave technical assistance in this study.

The cobaltous chloride used in this study was obtained from Smith, Kline & French Laboratories, Philadelphia, and Eli Lilly & Company, Indianapolis. Placebo tablets were obtained from Smith, Kline & French.

Serum lipid determination was done by Harold Brunn Institute for Cardiovascular Research, Mt. Zion Hospital, San Francisco.

1. (*a*) Cartwright, G. E.: Dietary Factors Concerned in Erythropoiesis, Blood **2**: 256 (May) 1947. (*b*) Robinson, J. C.; James, G. W., III, and Kark, R. M.: Effect of Oral Therapy with Cobaltous Chloride on Blood of Patients Suffering with Chronic Suppurative Infection, New England J. Med. **240**: 749 (May 12) 1949. (*c*) Berk, L.; Burchenal, J. H., and Castle, W. B.: Erythropoietic Effect of Cobalt in Patients With or Without Anemia, ibid. **240**: 754 (May 12) 1949. (*d*) Gardner, F. H.: The Use of Cobaltous Chloride in the Anemia Associated with Chronic Renal Disease, J. Lab. & Clin. Med. **41**: 56 (Jan.) 1953. (*e*) Gross, R. T., and Spaet, T. H.: Cobaltous Chloride in the Treatment of Sickle Cell Anemia, abstracted in Stanford M. Bull. **11**: 196 (Aug.) 1953. (*f*) Wolf, J., and Levy, I. J.: Treatment of Sickle-Cell Anemia with Cobalt Chloride, A. M. A. Arch. Int. Med. **93**: 387 (March) 1954.

2. Gross and Spaet [1e] and Wolf and Levy.[1f]

3. Berk and others [1c] and Gardner.[1d]

4. Gardner [1d] and Gross and Spaet.[1e]

5. Rohn, R. J., and Bond, W. H.: Observations on Some Hematological Effects of Cobalt-Iron Mixtures, Journal-Lancet **73**: 317 (Aug.) 1953.

5a. Gross, R. T.; Kriss, J. P., and Spaet, T. H.: Goitrogenic and Hematological Effects of Cobaltous Chloride in Patients with Sickle Cell Anemia, Pediatrics, to be published.

39,000 per cubic millimeter. Recurrent fever, anorexia, and upper respiratory infections had repeatedly occurred. For seven months prior to admission the patient had taken 60 to 80 mg. of cobaltous chloride daily. Examination on entry revealed a temperature of 100.4 F, pulse rate of 136 beats per minute, respirations 24 per minute, and blood pressure 110 mm. Hg

TABLE 1.—*Thyroid Findings After Cobalt Therapy in Five Patients*

Case	Age, Yr. and Sex	Diagnosis	Cobalt, Mg./Kg./Day	Duration of Therapy, Mo.	Thyroid Findings: Clinical	Thyroid Findings: Microscopic	Comment
1	4 M	Sickle cell anemia	3.4	7.5	4+ goiter ? hypothyroid	4+ hyperplasia	Recovered
2	6 M	Sickle cell anemia	3.9	3.0	3+ goiter myxedema	4+ hyperplasia	Recovered
3	12 M	Sickle cell anemia	3.0	3.0	2+ goiter	.....	Recovered
4	31 F	Renal amyloidosis	2.9	3.5	.....	2+ hyperplasia	Died in uremia
5	4 F	Sickle cell anemia	2.8	3.5	.....	1+ hyperplasia	Died of pneumococcic sepsis

systolic and 80 mm. Hg diastolic. The patient was listless and lethargic. Whereas examination of the neck two months earlier had revealed no abnormalities, a large goiter was now easily visible (fig. 1). The thyroid gland was bilaterally and asymmetrically enlarged, very firm, nodular, painless, and not fixed. There were no enlarged cervical lymph nodes. Because thyroid cancer was suspected, a surgical exploration was performed, and a biopsy was taken from the right lobe. Figure 2*A* shows the microscopic appearance of sections of the biopsy material. The follicles were large and irregular in outline; the lining epithelium was hypertrophic and columnar, with many papillary projections into the lumens; colloid was exceedingly scanty. The epithelial pattern was sufficiently atypical to warrant a consideration of carcinoma, but the regularity and uniformity of structure,

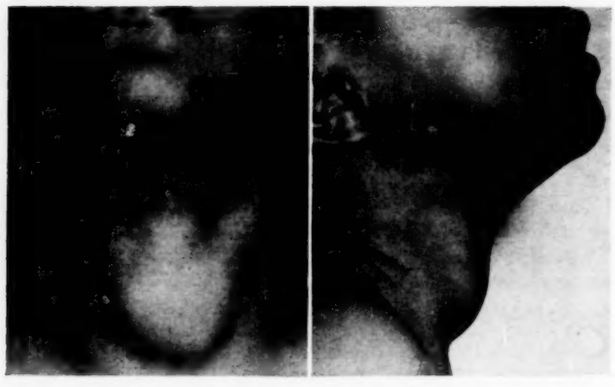

Fig. 1.—Appearance of goiter of patient in case 1 after seven months of cobalt therapy.

gross appearance at operation, and lack of apparent invasion of the capsule weighed in favor of hyperplasia. The diagnosis of hyperplasia received additional support from the tissue radioautograph (fig. 3*A*). When the autograph is compared with the corresponding tissue section (fig. 3*B*), it is seen that I^{131} was distributed through all major portions of the specimen; this finding would be most unusual in papillary carcinoma but was quite compatible with hyperplasia. Laboratory findings while the patient was taking cobalt and after withdrawal of the drug are shown in figure 4. After seven months of cobalt therapy the serum protein bound iodine was 6.1 mcg. per 100 cc., the 24

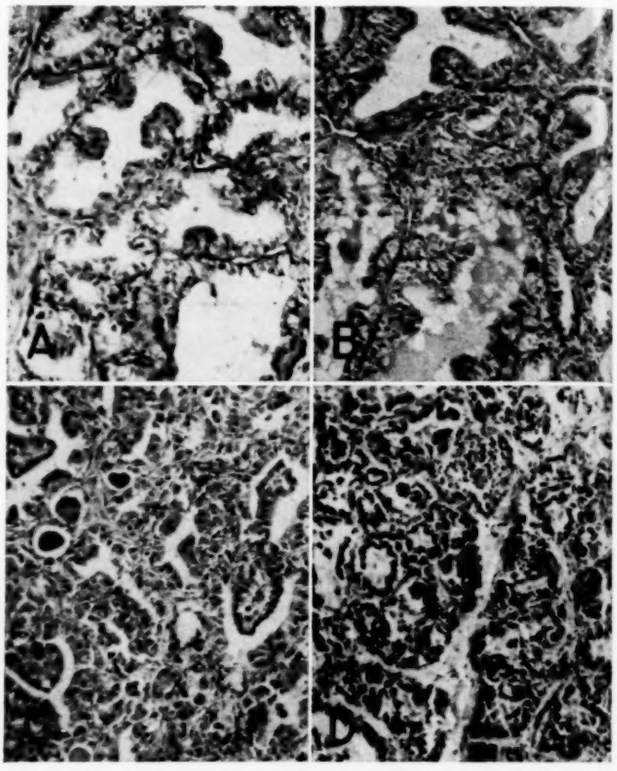

Fig. 2.—*A*, *B*, *C*, and *D*, histological sections of thyroid glands of patients in cases 1, 2, 4, and 5, respectively, showing hypertrophy and redundancy of epithelium and paucity of colloid (hematoxylin and eosin stain; × 76).

hour uptake of I^{131} was 12%, and the serum cholesterol was 256 mg. per 100 cc. Within two weeks after cobalt therapy was stopped the goiter was smaller, and within a month it had disappeared. The clinical recovery was accompanied by a marked rise in iodine uptake to 47% at one month and a subsequent fall to 27% at five months.

A possibility existed that a constituent of the enteric coating rather than the cobalt might be the goitrogenic agent. Review of the list of ingredients used in tablet manufacture did not disclose any material known to us to be goitrogenic; however, in order to evaluate the possible role of coating ingredients, placebo tablets identical to the original preparation but lacking the cobalt were administered for two months beginning Jan. 8, 1954. Subsequently, cobalt tablets with a different enteric coating were administered in a dose of 75 mg. daily. The results of this study are presented in figure 4. It is clear that more than two months of placebo therapy failed to suppress I^{131} uptake; however, within two weeks after administration of cobalt was resumed, I^{131} uptake was reduced to 11%, a value nearly identical to that obtained when the goiter was fully developed seven months earlier. Only six days after interruption of cobalt therapy, I^{131} uptake was markedly increased, to 70%; and one month later it had returned to 31%. In view of the fact that I^{131} uptake values after complete recovery agreed so closely, an approximate "control range" of I^{131} uptake has been arbitrarily drawn in between 25 and 35%. The values obtained during the period of placebo therapy fall within the control range. It seems reasonable to assume that the 47% and the 70% values represent rebound, abnormally high accumulations of I^{131}, caused by withdrawal of a substance inhibiting iodine uptake and inducing hyperplasia. Similar phenomena have been observed following withdrawal of antithyroid drugs.[10]

6. Allen, H. C., Jr.; Libby, R. L., and Cassen, B.: Scintillation Counter in Clinical Studies of Human Thyroid Physiology Using I^{131}, J. Clin. Endocrinol. **11**: 492 (May) 1951.

7. Salter, W. T., and McKay, E. A.: Iodine in Blood and Thyroid of Man and Small Animals, Endocrinology **35**: 380 (Nov.) 1944.

8. Chaney, A. L.: Improvements in Determination of Iodine in Blood, Indust. Eng. Chem. (Analytical Ed.) **12**: 179 (March) 1940.

9. Sandell, E. B.: Colorimetric Determination of Traces of Metals: Chemical Analysis: A Series of Monographs on Analytical Chemistry and Its Applications, edited by B. L. Clark and I. M. Kolthoff, ed. 3, New York, Interscience Publishers, Inc., 1950, vol. 3, pp. 271-290.

10. D'Angelo, S. A., and others: Effect of Goitrogen Withdrawal on Pituitary Thyroid System of Guinea Pig, Endocrinology **54**: 565 (May) 1954. Duffy, B. J., Jr., and Howland, J. W.: Use of Tapazole to Increase I^{131} Concentration in Euthyroid Patients, J. Clin. Endocrinol. **12**: 761 (June) 1952.

CASE 2.—A 6-year-old boy was referred to the Stanford Pediatric Clinic in July, 1953, for consideration of cobalt therapy. Sickle cell anemia had been diagnosed in 1948. Cardiac enlargement with systolic and diastolic murmurs, hepatomegaly, fever, and leukocytosis had been noted on frequent clinic visits. Hemoglobin level varied from 6.7 to 9.6 gm. per 100 cc. After the patient had received cobalt, 40 to 60 mg. daily, for four weeks, a routine check revealed him to be asymptomatic, and the thyroid gland was not palpable, but when the first thyroid study was made, six weeks after the start of therapy, a small

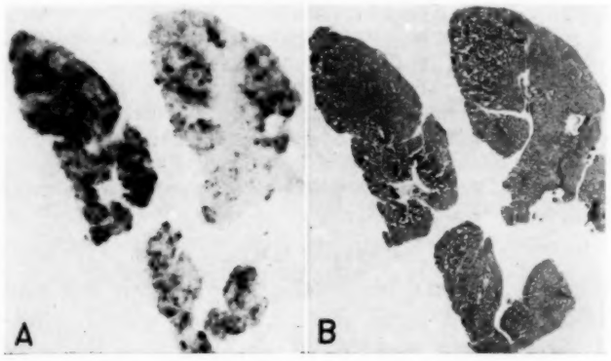

Fig. 3.—*A*, radioautograph prepared from thyroid biopsy specimen in case 1, and, *B*, corresponding stained tissue sections.

goiter was present. Two weeks later the goiter had doubled in size, and in another fortnight it had become clearly visible. During the third month of treatment the patient received 100 mg. of cobalt daily, and by the end of this time there had developed clinical signs of myxedema, consisting of marked lassitude, fatigability, dryness of the skin, and periorbital puffiness. Marked hepatomegaly and visible lipemia were also present. The thyroid gland was of uniform consistency; biopsy showed it to be symmetrically and diffusely enlarged. Figure 2*B* shows the microscopic appearance of the thyroid biopsy from the patient in case 2. The follicles are irregular, with papillary intrafollicular projections, and there are striking epithelial hypertrophy and hyperplasia. The colloid is very scanty, pale, and coarsely vacuolated. Radioautographs were similar to those shown in case 1.

TABLE 2.—*Laboratory Data During and After Cobalt Therapy in Case 2*

		Per 100 Cc. Serum				
	I^{131} Uptake, % per 24 Hr.	Protein Bound Iodine, Mcg.	Cholesterol, Mg.	Total Lipids, Mg.	Cobalt, Mcg.	Comment
Before cobalt therapy	..	...	...	....	...	Patient euthyroid; no goiter
During cobalt therapy 3 months	2*	1.0	388	1,610	195	Goiter palpable at 6 weeks, grew progressively as clinical myxedema developed
After cobalt therapy						
1 week	..	2.0	...	....	40	Patient improved clinically; goiter unchanged
2 weeks	..	2.6	...	....	Trace	
4 weeks	28	4.8	118	423	0	Patient euthyroid clinically; goiter much smaller

* Result at 6 weeks.

The striking abnormalities in laboratory findings during cobalt therapy as well as the clinical and laboratory recovery when therapy was discontinued are shown in table 2. The protein bound iodine was only 1 mcg. per 100 cc., I^{131} uptake was only 2% in 24 hours, and the serum cholesterol and total lipids were markedly elevated. Serum cobalt determination revealed a value of 195 mcg. per 100 cc. Within one week after therapy was stopped, the liver became much smaller, visible lipemia disappeared, serum cobalt level fell to 40 mcg. per 100 cc., and the protein bound iodine was 2 mcg. per 100 cc. Within 10 days there was a dramatic increase in the patient's activity, alertness, and appetite, and within a month the goiter had nearly disappeared and the laboratory tests were within normal limits (table 2).

CASE 3.—In a 12-year-old Negro boy who had received 32 transfusions in the previous five years because of sickle cell anemia, hemoglobin levels without transfusion did not exceed 5.5 gm. per 100 cc. In this case, thyroid function studies were performed before any cobalt therapy had been given, and these studies were repeated during and after the cessation of therapy. Observations were also made with the placebo tablets, as in case 1. The results of this study are presented in table 3. Before

TABLE 3.—*Laboratory Data Before and During Two Courses of Cobalt Therapy and During Placebo Therapy in Case 3*

		Per 100 Cc. Serum			
	I^{131} Uptake, % per 24 Hr.	Protein Bound Iodine, Mcg.	Cholesterol, Mg.	Cobalt, Mcg.	Comment
Before cobalt therapy	39	7.0	125	0	Neck examination normal
During cobalt therapy, 80 mg. per day for 9 weeks	2	7.4	168	75	2+ goiter
During placebo therapy					
4 weeks	28	7.6	145	60	1+ goiter
6 weeks	31	5.6	163	Trace	Goiter no longer apparent
7 weeks	29	5.2	195	Trace	
12 weeks	34	6.6	...	Trace	
During cobalt therapy, 150 mg. per day					
1 week	27	7.0	...	0	
5 weeks	12	5.8	...	Trace	

cobalt therapy there was no goiter, and thyroid function tests were within normal limits. After the patient had received cobalt, four 20 mg. tablets daily, for nine weeks, there was a marked reduction in I^{131} uptake, to 2% in 24 hours, but no alteration in protein bound iodine. The serum cobalt was 75 mcg. per 100 cc. A moderate-sized, diffuse goiter had appeared, but signs or symptoms of hypothyroidism were absent. A few days later,

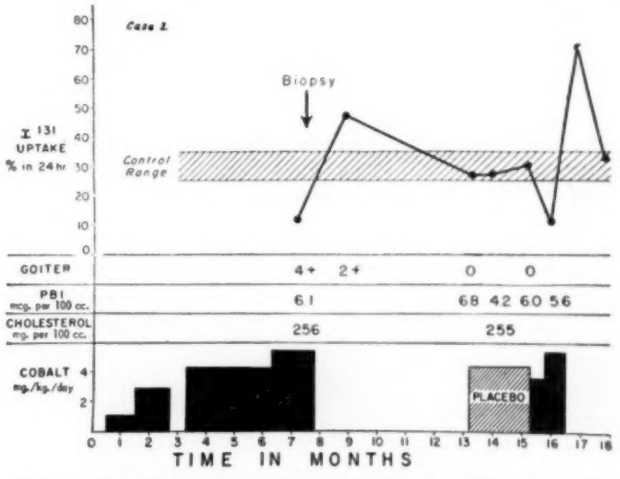

Fig. 4.—Thyroid function studies in relation to cobalt dosage and placebo therapy, case 1. (PBI is protein bound iodine.)

four placebo tablets daily were substituted for the cobalt tablets. Four weeks later the I^{131} uptake had risen again, to 28%, and the goiter was smaller; during this period, however, there was an 11 day lapse of therapy, due to an intercurrent infection. Since rise of I^{131} uptake and subsidence of the goiter may have occurred in these 11 days, administration of the placebo was continued for 12 weeks. Although the protein bound iodine values were lower than the initial level after six and seven weeks of placebo therapy, and the serum cholesterol values had risen slightly at the same time, after 12 weeks of placebo therapy

I^{131} uptake and protein bound iodine were essentially at control levels (34% and 6.6 mcg. per 100 cc.). Traces of cobalt could still be detected in the serum 12 weeks after cobalt therapy had been discontinued. A cobalt preparation from a different manufacturer, 150 mg. daily, was then substituted for the placebo. Five weeks later the iodine uptake was reduced to 12% in 24 hours; despite a larger dose of cobalt than was formerly used, only traces of cobalt were detectable in the serum. This patient is still under treatment and is receiving desiccated thyroid as well as cobalt to ascertain if goiter formation may be prevented and if hematological response is influenced.

AUTOPSY MATERIAL

In order to determine if cobalt-induced thyroid hyperplasia might have been overlooked in postmortem examinations, a review of cases in which this therapy had been used was undertaken, and two more cases of thyroid hyperplasia were found.

CASE 4.—A 55-year-old white housewife was hospitalized on Sept. 29, 1951, because of headaches, nausea, vomiting, and weight loss. The salt intake had been restricted because of ankle edema. The chief clinical findings were hypertension, uremia, and anemia. The blood pressure was 200 mm. Hg systolic and 100 mm. Hg diastolic; red blood cell count was 2,600,000; hemoglobin level was 9 gm. per 100 cc.; blood urea nitrogen level was 110 mg. per 100 cc., and carbon dioxide combining power was 22 vol. %. The urine contained 5 gm. of protein per 24 hours. The Addis count of urinary sediment revealed 30 million red blood cells, 20 million white blood cells, and no casts. The patient was placed on a diet of 40 gm. of protein, 5 gm. of salt, and fluids up to 3 liters per day; she received therapy with hexamethonium (Bistrium) bromide until a month before her death. Therapy with cobaltous chloride, 60 mg. daily, was begun on Oct. 6, 1951; this dose was raised to 120 mg. daily by the end of the first week and continued for the next three months, until two days before the patient's death. The patient was readmitted on Jan. 1, 1952, because of recurrent constricting, band-like chest pain of four days' duration. Dyspnea, orthopnea, and venous distention were present, and there were electrocardiographic signs of acute myocardial infarction. Hemoglobin had risen to 12.5 mg. per 100 cc. The blood urea nitrogen rose from 170 to 194 mg. per 100 cc., and the patient lapsed into coma, dying Jan. 19, 1952. No goiter was ever observed, nor were there signs or symptoms suggesting either hypothyroidism or hyperthyroidism. At autopsy the principal anatomic diagnoses were renal amyloidosis, cardiac hypertrophy, generalized arteriosclerosis, recent myocardial infarction, pulmonary embolism and infarcts, and diffuse thyroid hyperplasia. The thyroid gland was not noticeably enlarged at autopsy, but it was not weighed. The cut surface was pale, homogeneous, bulging, and less glistening than normal. Histological sections from both lobes showed marked irregularity in follicle size and shape, with moderately hypertrophied and redundant epithelium. The very sparse colloid was confined to occasional small follicles (fig. 2*C*); the stroma was very scanty; the alteration was diffuse and uniform, and no nodules were seen.

CASE 5.—A 3½-year-old Negro girl was referred to the Stanford Pediatric Clinic in March, 1952, with a history of four hospital admissions and repeated transfusions since 1950 for sickle cell anemia. She was seen for frequent minor respiratory infections during the next six months, the hemoglobin level fluctuating spontaneously between the extremes of 5.2 and 8 gm. per 100 cc. On Nov. 14, 1952, there were no complaints, and physical examination revealed no abnormalities except for a palpable spleen. The hemoglobin level was 7.1 gm. per 100 cc. Therapy with cobaltous chloride, 40 mg. per day, was given for the next three and a half months, but the history indicates that the medication may have been irregular. Hemoglobin level on Jan. 5, 1953, was 9.3 gm. per 100 cc. The patient was not seen again until Feb. 25, 1953, when she was brought to the clinic semicomatose; she had become ill the day before, with fever and vomiting. The temperature was 103.8 F, and no localizing signs were elicited. The patient died before she could be transferred to the ward. Blood obtained just before death was cultured and yielded pneumococcus, type 33. Prior to cobalt therapy, several examinations of the neck had been made, and no abnormalities had been recorded. No particular investigation of thyroid function had ever been undertaken. Chief anatomic diagnoses at autopsy were acute pharyngitis, tracheitis, and bronchitis, with mucosal invasion by gram-positive diplococci, generalized hyperemia of the viscera, hemosiderosis of the spleen, hyperplasia of the bone marrow, and hyperplasia of the thyroid. The thyroid gland was not weighed; it did not appear to be enlarged. The cut surface had a bulging, homogeneous, dark red appearance. Histologically there was moderate variation in follicle size, and many of the largest follicles were lined by slightly redundant columnar epithelium (fig. 2*D*). Colloid was very scanty; the interfollicular stroma was abundant and markedly hyperemic.

COMMENT

From the data presented, the conclusion that cobalt is a goitrogen seems inescapable for several reasons. 1. Goiters were observed to develop during administration of the drug. 2. Tests of thyroid function showed evidence of marked suppression of normal activity during drug therapy. 3. Clinical and laboratory recovery occurred after withdrawal of the drug. 4. Placebo tablets without cobalt failed to duplicate the action of cobalt. The development of goiter concomitant with laboratory and clinical evidence of depressed thyroid function can, of course, be produced by antithyroid drugs, such as thiourea derivatives and thiocyanate, and by severe iodine deficiency. In such instances, thyroid hormone output is reduced either by interference with hormone synthesis or because of lack of a major ingredient necessary for hormone formation. The anterior pituitary gland responds to the decreased level of circulating thyroid hormone by increasing the output of thyrotropic hormone, which induces the hyperplasia. Hyperplasia probably occurs with cobalt therapy by means of the same mechanism. Indirect evidence of increased thyrotropic stimulation of the thyroid is found in the prompt rise in iodine accumulation to abnormally high levels after cobalt withdrawal, a phenomenon also observed after withdrawal of other goitrogens [10]; however, the site of action of cobalt and the mechanism of diminishing the level of circulating thyroid hormone is less apparent. Cobalt differs from goitrogens of the thiourea and thiocyanate class in at least two respects: iodine uptake is not depressed by single doses of the drug but is lowered only after prolonged therapy, and we have been unable in repeated attempts to induce goiters or evidence of thyroid dysfunction in animals by giving either cobalt or the coating material. The results of these attempts will be the subject of another report. A possible mode of action that occurred to us is that cobalt may induce iodine deficiency by forming an unabsorbable cobalt-iodide complex. Such an action seemed unlikely because of the following observation: a few days after the low (2%) iodine uptake in case 3 was obtained, another test for I^{131} uptake was made, by the intravenous technique,[11] with essentially the same result. If iodide had been bound by cobalt in the intestine, the uptake after intravenous ad-

11. Kriss, J. P.: Uptake of Radioactive Iodine After Intravenous Administration of Tracer Doses, J. Clin. Endocrinol. **11**: 289 (March) 1951.

ministration should not have been low, but, on the contrary, the thyroid would probably have shown great avidity for the radioactive iodine.[12] We also investigated the possibility that cobalt might inactivate or combine with thyroid hormone in its protein bound form. It was found that when cobaltous chloride in concentration ranging from 50 to 10,000 mcg. per 100 cc. was added to human serum, the recovery of protein bound iodine was not affected.

The most attractive hypothesis of the antithyroid effect of cobalt is that the drug inhibits one or more of the enzymatic reactions of the thyroid whereby inorganic iodide is oxidized, bound, and converted into thyroxin. In a recent review of the effect of cobalt on several enzyme systems, it is postulated that the role of metals in enzyme systems may involve three individual functions that are not necessarily mutually exclusive. "(*1*) The metal may serve as the actual catalytic center of the enzyme, as it appears to do in the case of the heme enzyme, *2*), the metal may not be primarily involved in the catalysis, but may be required, as a binding group, to bring enzyme and substrate together in fruitful juxtaposition, and *3*) the metal ion may be required to maintain physiological control by antagonizing the activating effect of some other metal or an enzyme system."[13] Kirkwood[14] has recently reported on his studies of the enzyme tyrosine iodinase, which catalyzes the iodination of tyrosine to form monoiodotyrosine. At our suggestion that cobaltous chloride might have an inhibiting effect on the tyrosine iodinase system, Kirkwood[15] investigated the action of the drug and demonstrated that cobaltous chloride in a concentration of 10^{-3} M completely inhibits this enzyme system. It remains to be determined whether cobalt is a specific inhibitor of the enzyme itself, or whether it competes with enzyme for the iodine of the substrate. In either case, the observation that cobalt can completely inhibit one of the essential enzymatic reactions in thyroxin synthesis provides potent laboratory support for our clinical observations. It is interesting that, in cases 1 and 3, visible goiters developed and iodine uptake was low, despite the fact that the serum protein bound iodine was not at abnormally low levels. It seems likely that, as in iodine deficiency goiter, because of the hyperplasia and hypertrophy, the thyroid is able, at least initially, to maintain the protein bound iodine at normal levels. Clinical hypothyroidism and depressed protein bound iodine, as observed in case 2, are relatively late phenomena.

We consider thyroid hyperplasia and hypofunction as serious toxic manifestations of cobalt therapy. The patient in case 2 was ill enough to require hospitalization for myxedema, and in case 1 the character of the goiter was such as to prompt a clinical diagnosis of thyroid carcinoma and an exploratory operation. Although it is probable that the effects here reported are a function of cobalt dosage, we have insufficient data to analyze this factor. The possible role of anemia itself in making the thyroid gland more susceptible to the toxic effects of cobalt is currently being investigated. We consider it unlikely that the antithyroid effects of cobalt are related to a specific type of anemia, for example, sickle cell anemia, since the patient in case 4 of our series did not have this disorder. A recent report[11] also describes the use of cobaltous chloride in four adults with sickle cell anemia; no thyroid abnormality was reported. The drug had been given in a daily dose of 300 mg. for six weeks and then withdrawn. This relatively brief period of observation probably was too short to permit the development of a visible goiter or hypothyroidism in these cases; there was thus no apparent indication to perform thyroid function tests in these patients. We cannot agree with those who would favor the widespread use of this drug. We recommend that caution should be used, especially in the treatment of infants and children, in whom the development of hypothyroidism might impair growth and development. Cobalt should be used only if there are urgent indications and if the physician is fully aware of the possible hazards involved.

CONCLUSIONS

In five patients who received enteric-coated cobaltous chloride for treatment of anemia, hyperplasia of the thyroid developed. In three of these patients there were visible goiters, in three there was laboratory evidence of depressed thyroid function, and in one serious clinical myxedema developed. The goiters and the clinical and laboratory evidence of depressed thyroid function disappeared within several weeks after withdrawal of the drug. The observed changes are regarded as toxic effects of cobalt; the conclusion that cobalt is a goitrogenic agent seems inescapable. The indiscriminate use of cobalt, especially in infants and children, should be avoided.

536 Mason St. (2) (Dr. Kriss).

12. Stanbury, J. B., and others: Iodine-Deficient Human Thyroid Gland: Preliminary Report, J. Clin. Endocrinol. **12**: 191 (Feb.) 1952.

13. Lehninger, A. L.: Role of Metal Ions in Enzyme Systems, Physiol. Rev. **30**: 393 (July) 1950.

14. Kirkwood, S.: Tyrosine Iodinase, an Enzyme Concerned with Thyroidal and Extra-Thyroidal Metabolism of Organically Bound Iodine, read before Meetings of the American Goiter Association, Boston, April, 1954.

15. Kirkwood, S.: Personal communication to the authors.

The Physician's Responsibility.—The avowed objective of the profession of medicine is the common good of mankind. Physicians faithful to the ancient tenets of this profession are ever cognizant of the fact that they are trustees of medical knowledge and skill and that they must dispense the benefits of their special attainments in medicine to all who need them. Physicians dedicate their lives to the alleviation of suffering, to the enhancement and prolongation of life, and to the destinies of humanity. They share whatever they have learned and whatever they may discover with their colleagues in every part of the globe. They recognize instinctively that the need for improvement of medical knowledge and skills is never at an end, and while they strive toward satisfaction of this need they are zealous in making available to physicians of good character who possess the desire and the ability to learn the aggregate of progress in medical education, research, and discoveries as they may exist at the time. They do not remain content to limit their activities to the care of the infirm, since they recognize also their useful rank among the vast concourse of citizens on whose shoulders the destiny of our nation rests. At the same time they will resist attempts to debase their services by diverting them to ignoble purposes. In their relationships with patients, with colleagues, and with the public, they maintain under God, as they have down the ages, the most inflexible standards of personal honor. —Principles of Medical Ethics of the American Medical Association, chapter 1, section 2, June, 1954.

EFFECT OF EATING ON ELECTROCARDIOGRAMS AFTER MYOCARDIAL INFARCTION

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and
Bertram D. Dinman, M.D., Philadelphia

Changes have frequently been observed in the electrocardiograms of normal persons made after the ingestion of food.[1] Similarly, electrocardiographic changes have been demonstrated after meals in persons with angina pectoris.[2] To our knowledge, there have been no published observations regarding the effect of eating on the electrocardiograms of patients with recent myocardial infarction. The interest of one of us (S. M. L.) was focused on this problem when a patient who was recovering from a myocardial infarction complained of frequent epigastric discomfort after eating. He was known to have had several previous infarctions, as well as an asymptomatic duodenal diverticulum. In an attempt to ascertain the cause of his discomfort, electrocardiograms were made both before and after eating. Those taken after meals exhibited marked T wave changes (fig. 1). It appeared that these postmeal changes, although temporary, were of sufficient magnitude to introduce a considerable source of error in the interpretation of serial electrocardiograms obtained without regard to the ingestion of food. It was therefore decided to investigate the effects of eating on the electrocardiogram in a series of consecutive cases of recent myocardial infarction.

PROCEDURE

Twenty-seven consecutive cases with the clinical and electrocardiographic diagnosis of acute myocardial infarction constitute the material in this study. The patients were 16 men between the ages of 37 and 71 and 11 women between the ages of 40 and 71. Electrocardiograms were taken 10 to 30 days after the acute episode. The majority of the tracings were taken between the 14th and 30th days. The patients were at bed rest, and all tracings were made with the patient recumbent. The positions of the precordial leads were carefully marked on the chest wall so that comparable taps were obtained in repeated electrocardiograms of the same patient. The three bipolar limb leads, the three augmented unipolar limb leads, and the standard V leads, 1 to 6, were taken. In 8 of the patients, tracings were taken before and after each of the three daily meals; in the remaining 19 patients, tracings were taken before and after breakfast. The postmeal electrocardiograms were obtained one-half hour after eating. The meals consisted of the standard hospital diet served in the wards and private rooms. In two of the patients electrocardiograms were taken before and after the ingestion of 100 gm. of glucose. Fasting and postmeal serum potassium levels were determined in eight patients by means of the flame photometer. The following components of each of the 86 electrocardiograms were subjected to analysis: premeal rate, postmeal rate, Q-T interval, QRS complex, T wave, and S-T segment. Considerable difficulty was encountered in measuring the Q-T intervals in some of these electrocardiograms because of their abnormal form. Measurement was done by both investigators in order to minimize individual error. To adjust the Q-T interval for a cycle length of one second or a heart rate of 60 per minute, the corrected Q-T interval (Q-Tc) was calculated.[3]

RESULTS

In the 27 cases studied, there were 12 anterior infarctions (44%), 10 posterior infarctions (37%), and 5 combined (anterior and posterior) infarctions (19%).

Change in Rate.—The average rate of each of the 43 premeal electrocardiograms was compared with the average rate of the corresponding postmeal tracings in order to determine the average rate change. The maximum rate increase was 20, and the maximum rate decrease was 17; the rate was unchanged in three patients. The rate increment together with the frequency of occurrence is shown in table 1. In only two patients did the postmeal rate attain a tachycardial level, in one becoming 100 per minute and in the other becoming 105 per minute; however, the premeal rates were 91 and 95, respectively, so that a small increase resulted in a tachycardia. A sinus rhythm was evident in all of the tracings in this series.

Changes in the T Wave.—Change in the direction (polarity) of the T wave postprandially was observed in 10 patients. This was regarded as a major change (fig. 2). Such a change was noted in multiple leads in five patients, and appeared in a single lead in five patients. Five of the patients exhibiting change in the T wave polarity after meals had anterior wall infarctions, three had posterior wall infarctions, and two had combined anterior and posterior wall infarctions (table 2). The change in polarity following the ingestion of food did not appear to be consistently related to a change in rate, since the change in polarity appeared in electrocardiograms that exhibited either an increase or a decrease in rate. In numerous instances, increase in the magnitude of either positive or negative T waves was observed; this increase was often considerable. Since there was no change in the polarity of the T wave, increase in magnitude was regarded as a minor change (fig. 3). Increase in T wave magnitude sometimes occurred without a change in the mag-

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1. (*a*) Simonson, E.; Alexander, H.; Henschel, A., and Keys, A.: The Effect of Meals on the Electrocardiogram in Normal Subjects, Am. Heart J. **32**: 202-214 (Aug.) 1946. (*b*) Simonson, E., and Keys, A.: The Effect of an Ordinary Meal on the Electrocardiogram: Normal Standards in Middle-Aged Men and Women, Circulation **1**: 1000-1005 (April, pt. 2) 1950.

2. Berman, B.; Braunstein, J. R., and McGuire, J.: The Effect of Meals on the Electrocardiogram and the Ballistocardiogram in Patients with Angina Pectoris, Circulation **1**: 1017-1025 (April, pt. 2) 1950.

3. Kissin, M.; Schwarzchild, M. M., and Bakst, H.: A Nomogram for Rate Correction of the Q-T Interval in the Electrocardiogram, Am. Heart J. **35**: 990-992 (June) 1948.

nitude of the dominant deflection of the preceding QRS complexes; in other cases, the dominant deflection of the QRS complexes became either larger or smaller. T wave changes did not always follow a fixed pattern. Certain leads in the postmeal electrocardiogram simulated improvement in a few cases, while other leads showed increasing T wave abnormality in the same cases. In some patients all of the involved leads appeared to improve (fig. 4). When electrocardiograms were taken before and after the three daily meals on any given day, T wave changes that were seen after one meal did not consistently recur after either of the other two meals. Two of the patients who exhibited T wave changes after a standard breakfast were given 100 gm. of glucose in water. Almost identical changes were reproduced after glucose ingestion (fig. 5).

TABLE 1.—*Rate Change in the Postmeal Electrocardiogram*

Rate Increase	No.	%
1 to 10	31	71.9
11 to 20	4	9.4
Rate Decrease		
1 to 10	4	9.4
11 to 20	1	2.3
No Change	3	7.0

TABLE 2.—*Distribution of T Wave Polarity Changes*

Location of Infarct	No. of Patients	Leads Showing Polarity Changes
Anterior	5	Case 5-Lead V_6 Case 6-Lead V_3 Case 10-Lead 2 Case 16-Leads 2, 3, aVR, aVL, aVF, and V_3 Case 22-Lead 1
Posterior	3	Case 15-Leads 2, 3, and aVF Case 24-Leads V_5 and V_6 Case 26-Lead V_6
Combined	2	Case 13-Leads 3, aVF, and V_6 Case 27-Lead 3

Changes in the Q-T Interval.— In order to adjust the Q-T interval for a cycle length of one second of a heart rate of 60 per minute, the corrected Q-T (Q-Tc) was calculated.[3] The upper normal Q-Tc for women was 0.432 second, for men, 0.422 second.[4] Twenty-two electrocardiograms showed a normal Q-Tc before meals and again when repeated after meals. In four electrocardiograms in which the fasting Q-Tc was normal, it became prolonged when the tracings were repeated after a meal. Six electrocardiograms demonstrated a premeal Q-Tc prolongation that reverted to normal in tracings made after a meal. Ten pairs of electrocardiograms showed Q-Tc prolongation before and after meals (table 3).

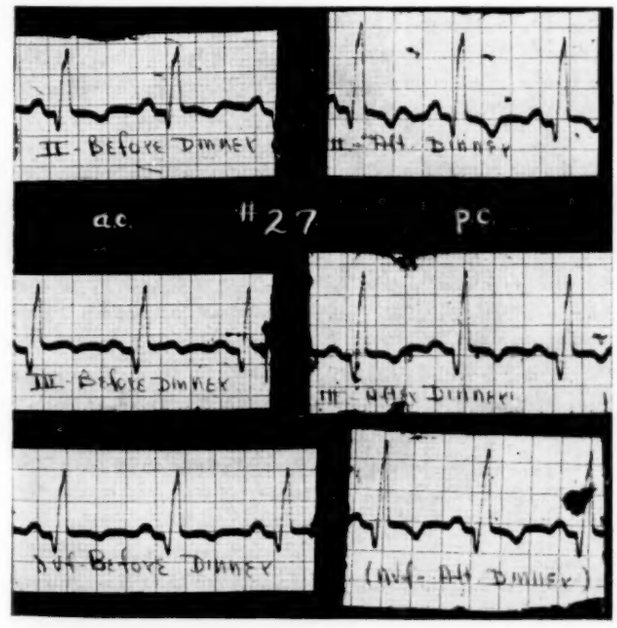

Fig. 1.—Electrocardiogram of a patient with recent anterior and posterior wall infarction, showing marked postprandial changes in leads 2, 3, and aVF (a. c. and p. c. are ante cibum and post cibum).

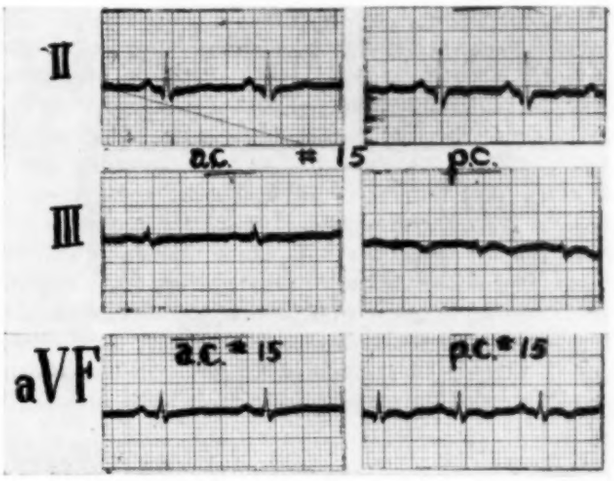

Fig. 2.—Leads showing major T wave changes after a meal in a patient with recent posterior wall infarction.

Changes in the S-T Segment.—Primary S-T segment changes were not an outstanding feature in any of the electrocardiograms reviewed. Only three leads of all of the postmeal electrocardiograms exhibited S-T changes of as much as 1 mm. These changes were associated with a rate increase, but in no case was the rate increase great enough to be classified as tachycardia.

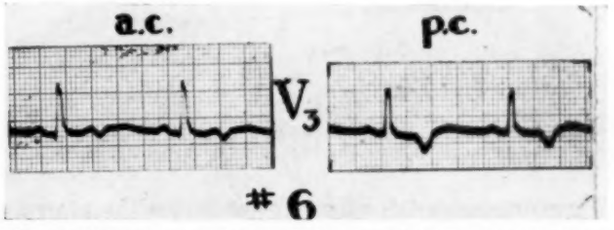

Fig. 3.—Effect of a meal in producing a minor T wave change in one lead of the electrocardiogram of a patient with anterior wall infarction.

Potassium Changes After Food Intake.—Fasting and postprandial serum potassium levels were determined in eight cases. In none of the patients was the serum potassium level abnormal after a regular meal; yet in three of these patients changes in the polarity of the T wave were noted in at least one lead after a meal (table 4).

COMMENT

The initial electrocardiographic change following acute myocardial infarction consists of displacement of the S-T segment. The direction of this displacement is dependent

4. Ashman, R., and Hull, E.: Essentials of Electrocardiography for the Student and Practitioner of Medicine, ed. 2, New York, The Macmillan Company, 1941, p. 344.

on the position of the exploring electrode relative to the area of damage. Ultimately, the S-T change is followed by a change in the direction of the T wave. The depth of the inversion of the T wave at the area of damage increases to a maximum point, after which it tends to revert toward its normal preinfarction configuration. This entire sequence occupies varying periods of time in different cases; by observing this sequence of events the electrocardiographer can follow the progression of the healing process. Any factors that influence the configuration of the T wave would necessarily interfere with a valid interpretation of a serial electrocardiographic study. Known cardiac and extracardiac factors influence the configuration of the T wave in the normal and abnormal electrocardiogram. Some of these factors are: drug administration,[5] electrolyte imbalance,[6] thermal influences,[7] and body posture.[8] Simonson and his group have shown that T wave changes occur after meals in the electrocardiograms of normal persons.[1] Berman and others have

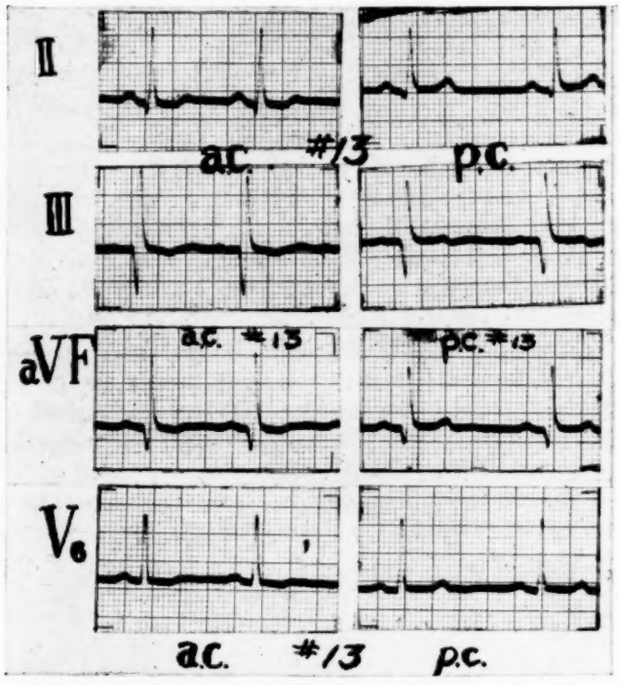

Fig. 4.—Combined anterior and posterior wall infarction in which four of the involved leads simulate improvement after the patient has eaten.

demonstrated that food can be employed in some instances to disclose latent abnormalities in the electrocardiograms of persons with coronary artery disease.[2] In the latter group, eating might simulate the effect of exercise, because increased cardiac output is necessary for digestion.

This study demonstrates that a significant percentage of patients in the postinfarction state exhibit varying degrees of electrocardiographic changes after eating. These changes, although temporary, may be a source of error in the study of serial electrocardiograms. The location of the myocardial infarcts did not appear to influence the occurrence of postmeal electrocardiographic abnormalities. Major changes were seen frequently, whether the infarctions were anterior, posterior, or combined. We could not correlate alterations in rate with the incidence of postmeal electrocardiographic changes. The most outstanding electrocardiographic deviations occurred when the rate was not significantly altered. In no instance could we attribute changes to a tachycardia of any magnitude. An increase in the rate did not necessarily result in an increasing electrocardiographic abnormality; in fact, in several postmeal electrocardiograms the T waves appeared more abnormal than in the premeal electrocardiograms, although the rates were decreased.

It is of some interest to note that there were no alterations in the character of intraventricular conduction after the ingestion of food. Alterations in the S-T segment were of insignificant magnitude. We encountered deviations of as much as 1 mm. in only 3 of the 1,032 leads examined. These findings would appear to be at some variance with findings in the positive exercise electrocardiogram. It is true that T wave changes occur after exercise in the

TABLE 3.—*Corrected Q-T Interval Before and After Meals*

Men			Women		
Case No.	Before Meals	After Meals	Case No.	Before Meals	After Meals
1	0.420	0.418	6	0.442	0.423
	0.418	0.408		0.390	0.420
	0.416	0.430		0.412	0.412
2	0.450	0.418	7	0.388	0.390
	0.430	0.436		0.384	0.408
	0.410	0.436		0.398	0.394
3	0.430	0.440	8	0.418	0.434
	0.436	0.450		0.424	0.412
	0.434	0.428		0.418	0.420
4	0.424	0.422	9	0.408	0.388
5	0.366	0.392	10	0.406	0.430
	0.354	0.376		0.430	0.430
	0.352	0.368		0.436	0.436
12	0.454	0.464	11	0.482	0.470
13	0.450	0.386	14	?	?
16	0.366	0.338	15	0.460	0.463
17	0.436	0.422	18	0.436	0.434
20	0.432	0.418	19	0.458	0.438
21	0.426	0.430	24	0.446	0.458
22	0.408	0.396			
23	0.405	0.400			
25	0.373	0.388			
26	0.420	0.420			
27	0.400	0.408			

TABLE 4.—*Serum Potassium Levels Before and After Meals (Normal Values, 4.1 to 5.6 mEq. per Liter)*

Case	Before Meals, mEq. per Liter	After Meals, mEq. per Liter
16	5.0	4.1
17	6.4	5.9
18	6.2	5.5
19	5.4	5.9
20	5.7	5.8
22	5.0	5.2
24	5.9	5.1
25	5.6	5.2

5. Starr, I.; Gamble, C. J., and Margolies, A. J.: Clinical Study of Action of 10 Commonly Used Drugs on Cardiac Output, Work, and Size; on Respiration, on Metabolic Rate, and on the Electrocardiogram, J. Clin. Invest. **16**: 799-823 (Sept.) 1937.

6. Bellet, S.; Steiger, W. A.; Nadler, C. S., and Gazes, P. C.: Electrocardiographic Patterns in Hypopotassemia: Observations on 79 Patients, Am. J. M. Sc. **219**: 542-558 (May) 1950.

7. Wilson, F. N., and Finch, R.: The Effect of Drinking Iced-Water upon the Form of the T-Deflection of the Electrocardiogram, Heart **10**: 275-278 (Oct. 15) 1923.

8. Mayerson, H. S., and Davis, W. D., Jr.: Influence of Posture on the Electrocardiogram, Am. Heart J. **24**: 593-601 (Nov.) 1942.

presence of coronary artery disease, but the changes usually noted are the ones that appear mainly in the S-T segment. If the electrocardiographic abnormalities observed in this study after eating were due to coronary insufficiency, they ought to be similar to those encountered after exercise. Since 26 patients in this series did not complain of postmeal pain, and had electrocardiographic changes that are primarily dissimilar to those found in a positive exercise tolerance test, it would appear that these changes are not due to coronary insufficiency. It has been shown that the Q-T interval is prolonged after myocardial infarction.[9] We employed the Q-T interval corrected for the rate (Q-Tc).[3] It was observed that the Q-Tc varied in the same patient on any given day regardless of food ingestion. Indeed, the variation was of sufficient magnitude to make the Q-Tc abnormal before eating during different periods of the same day. In view of this inherent inconsistency of the Q-Tc, and since so few instances of Q-Tc prolongation were observed postprandially, it would seem that the Q-Tc is not affected by food ingestion.

The T wave was the most frequently affected component of the postmeal electrocardiogram. Many gradations of T wave change were noted; only when there was a change in polarity was T wave change classified as a major change; an alteration in T wave magnitude without change in polarity was considered to be a minor change. Major changes occurred in 10 of the 27 patients studied. Very frequently a major T wave change appeared in several leads of the electrocardiograms of these 10 patients. There were numerous instances of minor T wave change postprandially. Very frequently alterations in the T wave were accompanied by changes in the magnitude of the preceding QRS complex. There was no fixed relationship between the magnitude of the dominant QRS deflection and the magnitude of the T wave that followed it. That is, the height of the dominant QRS complex might increase while the T wave would diminish, or the opposite might occur. Frequently, both the QRS complexes and the T waves increased or decreased concurrently. Most of these changes occurred in the precordial leads. It was felt that they were due to vector alterations attendant on a postmeal shift in the position of the heart. Some of the minor postprandial T wave changes were of considerable magnitude, measuring as much as 5 mm. It seems that, when premeal and postmeal T waves are both positive, changes in magnitude do not greatly alter electrocardiographic interpretation, but when premeal T waves are inverted and postmeal T waves are more deeply inverted, interpretation of serial electrocardiograms may conceivably be subject to error. A diminution in the depth of negative T waves occurred in some postmeal electrocardiograms. This was not always accompanied by a change in the dominant deflection of the preceding QRS complex. In such instances these alterations mimicked regressive changes in the electrocardiogram; thus they may introduce another source of error in interpretation.

Variations in the normal postmeal electrocardiogram have been attributed to a diminution in the concentration of the serum potassium.[10] In this small series of patients with myocardial infarction, there was no single instance of decrease in the serum potassium to abnormal levels after the ingestion of a regular meal; yet, in the eight patients in whom serum potassium determinations were performed before and after eating, there were major T wave changes in the electrocardiograms of three patients. One of the patients exhibiting such a major T wave change actually had an increase of the serum potassium postprandially; further, none of the electrocardiographic changes observed in this series completely or consistently resembled those occurring in hypopotassemia.[6] Two patients who exhibited major changes after the ingestion of a regular meal demonstrated precisely the same changes when given 100 gm. of glucose in water; it would seem, therefore, that alterations of volume, viscosity, consistency, and chemical content do not significantly affect the electrocardiogram. A similar conclusion was reached by Simonson and co-workers.[1a] It also seems that potassium is not the cause of these changes; if it were, one might expect them to be more marked after

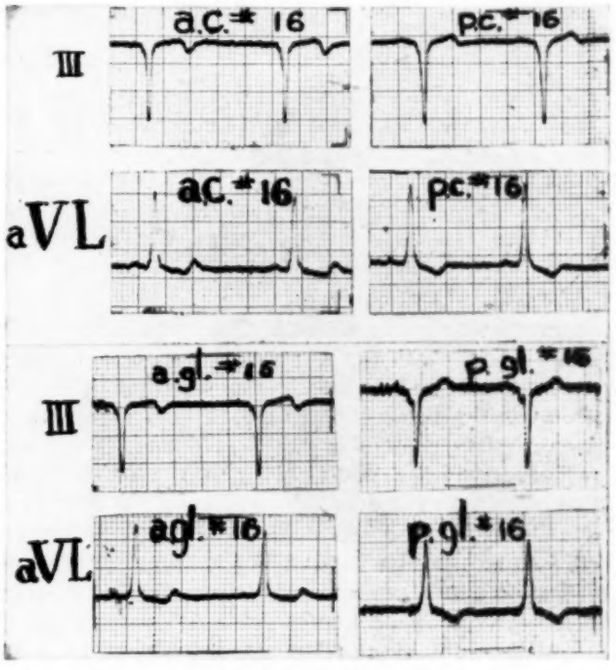

Fig. 5.—Old posterior and recent anterior infarctions. Above, effect of eating an ordinary meal on leads 3 and aVL. Below, identical changes appearing after ingestion of 100 gm. of glucose in water.

the administration of glucose, at least when potassium requirements for glucose utilization are not offset by other potassium-containing foods as they are in a regular meal. It is difficult to attribute the foregoing observations to any single factor that may be operative after the ingestion of food. Improvement has been observed in electrocardiograms, or portions of electrocardiograms, made after the patient has eaten; these changes are therefore not likely to be due to either potassium depletion or coronary insufficiency. Factors yet unknown may effect this apparent improvement. When the postmeal electrocardiogram exhibited abnormalities described as the major type, they could not be explained on the basis of positional variation, coronary insufficiency, or potassium deficit acting singly.

9. Bellet, S., and Finkelstein, D.: Significance of QT Prolongation in the Electrocardiogram: Based on the Study of 168 Cases, Am. J. M. Sc. **222**: 263-278 (Sept.) 1951.

10. Goldberger, E.: Unipolar Lead Electrocardiography and Vectorcardiography, ed. 3, Philadelphia, Lea & Febiger, 1953, p. 160.

The one outstanding finding in this study is that eating affects the electrocardiogram to varying degrees in a large percentage of patients who have recently suffered myocardial infarctions. These changes may simulate improvement or progressive damage. The electrocardiographer is unable to distinguish them from changes regularly occurring after infarction. Since these changes introduce a source of error in the interpretation of serial electrocardiograms, we feel that there should be a standardization of technique in order to minimize this error. Electrocardiograms would best be taken in a fasting state; if, in actual practice, it is difficult to obtain such tracings, care should be exercised so that tracings are not taken directly after eating.

SUMMARY AND CONCLUSIONS

This study of patients with recent myocardial infarction indicates that eating alters the configuration of the electrocardiogram in a significant number of cases. A change in the polarity of the T wave was classified as a major alteration. Variation in the magnitude of the T wave, without an alteration of polarity, was classified as a minor change. The latter was more frequently encountered. The other components of the electrocardiogram were not significantly affected. The appearance of T wave alterations after the ingestion of food may simulate improvement or progression of the electrocardiographic pattern. Since the T wave configuration is a basis of comparison in a serial study, transient postmeal alterations introduce a source of error. These findings suggest that there should be a modification of current electrocardiographic technique to obviate the effect of eating. Ideally, serial electrocardiograms should be performed in a fasting state; if this is not feasible, several hours should be allowed to elapse between the taking of a meal and the taking of an electrocardiogram.

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TRICHOMONAS VAGINALIS INFECTIONS

A CLINICAL AND EXPERIMENTAL STUDY

Carl Henry Davis, M.D., Miami, Fla.

A Trichomonas vaginalis infection should be suspected whenever a woman complains of a vaginal discharge with itching. At the original examination proper diagnosis frequently is missed, since many women douche shortly before visiting the physician's office. It is necessary to question every woman in this regard and, if she has douched, have her return three or four days later without further use of douche. Diagnosis of T. vaginalis is made by securing secretion from the posterior vaginal fornix with a stiff wire loop, mixing it with normal saline solution on a slide, and immediately examining it under the low power of the microscope. A less satisfactory method is to obtain secretion with a swab, which is inserted into a test tube containing normal saline solution for later examination in a laboratory.

It is generally recognized that T. vaginalis infections are commoner among the segment of the population that depends on public clinics for medical care. A review of cytological reports in which the presence of trichomonads is recorded is one method by which a comparison may be made. C. G. Grand and I presented a paper in 1952 [1] in which three series of 500 cases each were given. Recently I checked reports on 5,115 private patients and 2,584 clinic patients from the files of the Cancer Institute at Miami. The records of private patients represented sampling of the records from winter, spring, summer, and fall in 1953. Figure 1, based on date of diagnosis of 150 consecutive cases seen in private practice, shows a seasonal variation among patients complaining of T. vaginalis infections. The findings in the 5,115 private and 2,584 clinic cases, which are consecutive and include those reported on in 1952, are shown in table 1. The ages of all patients were recorded so that the average for each cytological grade could be determined. In the Ayre classification, grade 0 means normal; grade 1, inflammatory; grade 2, anaplastic; and grade 3, malignant cells. It will be noted that T. vaginalis infection was three and one-half times more frequent among the clinic patients and a report of malignant cells, three and one-third times as common. Furthermore, the average age of private patients who had a T. vaginalis infection and malignant cells was 16 years younger than that of those who had no evidence of trichomonads. In the clinic group the age differential was 15 years. On the basis of guilt by association, this study would seem to connect T. vaginalis infections in some manner with the fact that cancer of the cervix is commoner among the poor.

It has long been recognized that cancer of the cervix is relatively uncommon among women of the groups of population in which all men are circumcised. Cancer of the cervix is also very rare among nuns. Fabien Gagnon of Quebec, Canada, has reported [2] that cancer of the cervix is extremely rare among nuns, although, like Jewish women, they have the usual incidence of carcinoma of the corpus uteri. In answer to an inquiry regarding the incidence of trichomonal infections among nuns, he wrote: "Naturally I had not time to do a survey of archives. However, right now I can affirm quite safely that nuns with acute Trichomonas vaginalis infections are very rarely seen." Is it possible that T. vaginalis infections contribute to cancer of the cervix? A study showing relative incidence of this infection in groups in which men are circumcised and those in which men are not circum-

Read before the Section on Obstetrics and Gynecology at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 23, 1954.

1. Davis, C. H., and Grand, C. G.: Trichomonas Vaginalis Donné: An Evaluation of Experimental and Clinical Data, Am. J. Obst. & Gynec. **64**: 544-551, 1952.

2. Gagnon, F.: Contribution to the Study of the Etiology and Prevention of Cancer of the Cervix of the Uterus, Am. J. Obst. & Gynec. **60**:516-522, 1950.

cised is needed. Lanceley of Manchester, England, has demonstrated [3] that uncircumcised men may carry trichomonads under the prepuce.

The higher incidence of T. vaginalis infections among the clinic portion of the population probably is due in part to unhygienic conditions in the home, where there is greater possibility of infection from close contact. Over the years persons interested in the problem of T. vaginalis infections have attempted to determine the pos-

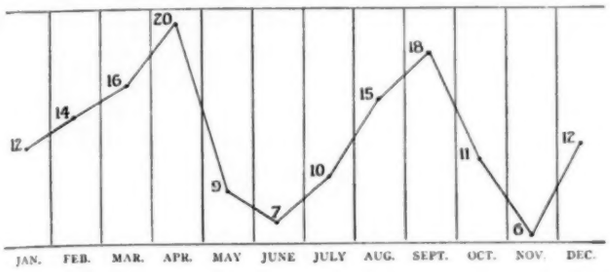

Fig. 1.—Seasonal incidence in 150 consecutive cases of T. vaginalis infection.

sible source of infection of patients, but with little success. Contaminated, stagnant lakes and swimming pools have been suspected, but thus far no definite proof is available. Study of T. foetus reveals no similarity between it and T. vaginalis. Thus far relatively few men have been found to have a T. vaginalis infection, but more intense study is needed, including wet smears from under the prepuce.

TABLE 1.—*Vaginal Cytological Findings and Incidence of Trichomonas Vaginalis Infection in 5,115 Private and 2,584 Clinic Patients*

Cytological Grade (Ayre)	Trichomonad-Free		Trichomonad-Infected		% of Patients with T. Vaginalis Infection
	No. of Patients	Average Age	No. of Patients	Average Age	
Private Patients					
0	3,010	40	27	43	0.9
1	1,675	42	325	39	16.3
2	37	35	7	38	15.9
3*	30	57	4	41	11.8
Totals	4,752	..	363	..	7.1
Clinic Patients					
0	934	34	173	33	15.6
1	888	36	437	32	33.0
2	69	42	26	34	27.4
3†	50	49	7	34	12.3
Totals	1,941	..	643	..	24.9

* Incidence of malignant cells in private patients was 0.66%.
† Incidence of malignant cells in clinic patients was 2.21%.

TRICHOMONACIDAL AGENTS

Early in 1953, C. G. Grand and I undertook a review of well-established practices in the treatment of T. vaginalis infections. For instance, it had long been accepted that an acid douche should be used. This practice was based on cultural studies showing that when the pH was below 5 the organisms would die. We found that the commonly used vinegar douche with a pH of 3 produced no visible effect on T. vaginalis under the microscope in 15 minutes. Both citric and lactic acids were tested with similar results. In my treatment of T. vaginalis infections 30 years ago I had successes with alkaline preparations, and when I returned to their use a year ago patients reported them more soothing than the previously used acid solutions. Our studies also indicate that use of sugar in the vagina is unnecessary.

In Vitro Studies.—Having decided against the further use of acid preparations, we began in vitro evaluations of many different preparations, ruling out those that did not kill or destroy trichomonads in under three minutes. Next we rechecked the more promising to determine if they met our requirements for a satisfactory trichomonacide, which we had postulated should (1) have the ability to penetrate and dissolve mucinous material, (2) not irritate the already inflamed mucosa, and (3) be lethal to flagellates within three minutes. All mercurials and arsenicals, copper sulfate, and many other agents were soon eliminated, and gradually the field was narrowed to three groups of detergents. Table 2 shows the killing time in a 1:500 dilution of two agents from each of these groups: lauryl sulfate, alkyl aryl sulfonate, and polyoxyethylene. Previously we had checked several preparations containing a salt of either lauryl sulfate or alkyl

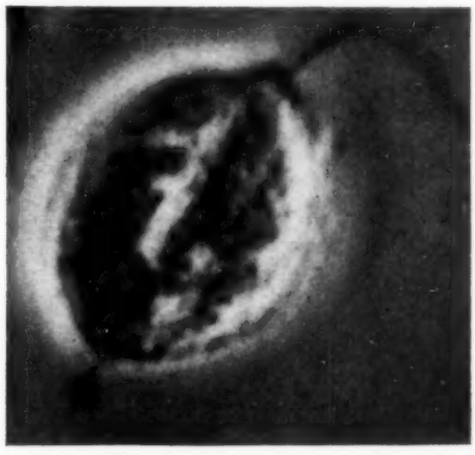

Fig. 2.—Trichomonas vaginalis organism, photographed through phase-contrast microscope.

aryl sulfonate, but with one exception all required over five minutes to kill the organisms in culture.

Polyoxyethylene nonyl phenol proved to be the most effective of the detergents tested. It was known that this chemical was being omitted from a household product owing to allergic reactions among housewives; however, we reasoned that it might be combined with other chemicals in proportions that would be effective with minimal irritation to skin or mucous membrane. It was found that addition of a chelating agent to attack the calcium in the membrane of the flagellate very greatly improved the killing time and that this was again improved by the further addition of a wetting agent. We had demonstrated that there is a definite synergistic action among polyoxyethylene nonyl phenol, a chelating agent, and a wetting agent. Various chemicals were tested in many different proportions before the formula that has been tried clinically during the past year was arrived at. Further experience may result in some variations in proportions, but results thus far justify our early, in vitro conclusions.

3. Lanceley, F.: Trichomonas Vaginalis Infections in the Male, Brit. J. Ven. Dis. **29**: 213-217, 1953; abstracted, J. A. M. A. **154**: 1467 (April 24) 1954.

Carlendacide.—A preparation containing polyoxyethylene nonyl phenol, sodium ethylenediamine tetraacetate, and sodium dioctyl sulfosuccinate has been developed, which we have named Carlendacide. Tests show that some flagellates will survive more than 15 minutes when any one of the constituent chemicals is used alone in the dilution used clinically, but that, if the detergent and the chelating agent are combined, all organisms are killed in an average of 75 seconds. When the wetting agent is added also, as in our formula, all trichomonads are killed in well under 30 seconds. The cumulative or synergistic action of detergent, chelating agent, and wetting agent has produced a compound lethal for various animal micro-organisms in a dilution that is relatively nontoxic and nonirritating.[4]

Motion pictures taken through a phase-contrast microscope at 24 frames per second show that individual trichomonads are destroyed within 10 to 14 seconds

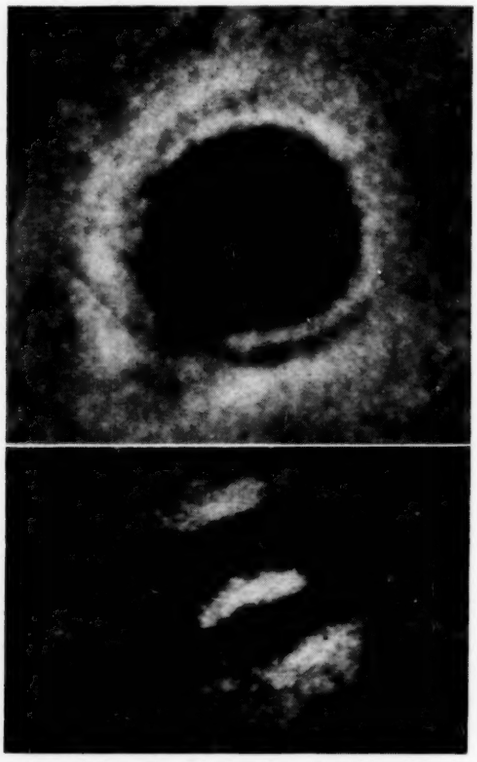

Fig. 3.—Above, photomicrograph of T. vaginalis organism six seconds after contact with 1:250 solution of Carlendacide. Below, photomicrograph of organism 12 seconds after contact with solution.

after contact with a 1:250 solution of Carlendacide (fig. 2 and 3). Owing to the presence of blood serum or agar in the culture mediums, contact with some flagellates on a slide is delayed, but in our tests all have been killed by this solution within 30 seconds after it was mixed with a drop of material from the culture tube.

Working with a new medical product necessitates great care. Before testing the preparation, Carlendacide, on patients, its toxicity had to be tested in various ways. Using tissue cultures, C. G. Grand demonstrated that in a dilution of 1:400 it did not damage cells or prevent growth. Many applications of this material in full strength to human skin indicated the probability of a low incidence of allergic reaction. On Aug. 29, 1953, Carlendacide was added to the drinking water of two groups of laboratory mice, one group receiving a concentration of 1:500 and the other, 1:250. This dosage has been continued to the time of writing with no evidence of toxicity. Three groups of young chickens had a 1:1,000 solution as drinking water, and later another group had a 1:500 solution as drinking water for a three month period. This latter group had an average weight gain of 9 oz. (about 255 gm.) more than those receiving tap water.

Clinical Trials.—After preliminary tests I started using Carlendacide in treatment of a small group of patients who had T. vaginalis infections of long standing. An effort was made to give three office treatments the first week, two the second, and one the third. On the days the patient did not report to the office she douched morning and night, using a teaspoonful (about 4 to 5 ml.) of Carlendacide to a quart (0.95 liter) of warm water. The office treatment consists of introducing a DeVilbiss or Miller speculum, checking vaginal secretions for flagellates, drying the vagina with cotton or gauze held by a ring forceps, then washing it thoroughly with a 1:250 solution of Carlendacide. The advantage of the instruments suggested is that they can be rotated during the cleansing of the vagina. If one has only the Graves speculum, it should be removed before washing of the vagina, since it cannot be rotated. The patient is instructed to douche one or twice daily during the next menstrual period and then discontinue the douche for three or four days before she returns to the office for a check. If the infection is limited to the vagina, it should be possible to eliminate all of the trichomonads with this one course of treatment; however, in the small percentage of women who have an involvement of cervical, vestibular, or urethral glands other types of treatment will be required. Rarely, other organs are infected and must be treated. Treatment of infected glands with a cautery or coagulation needle may be advisable. Other treatments must be individualized and may prove unsatisfactory.

TABLE 2.—*Effectiveness of Detergent Solutions Against Equal Volumes of Trichomonas Vaginalis Culture*

Agent	Concentration	Killing Time, Sec.
Lauryl sulfate sodium	1:500	100
Lauryl sulfate triethanolamine	1:500	120
Alkyl aryl sulfonate amine	1:500	100
Alkyl aryl sulfonate triethanolamine	1:500	95
Polyoxyethylene tridecanol	1:500	30
Polyoxyethylene nonyl phenol	1:500	20

Early in October, 1953, permission was obtained from the Food and Drug Administration to ship Carlendacide through the mails. Since it was made available in a number of states, it has been tested to some extent by over 100 specialists in obstetrics and gynecology. Those who have followed the plan of treatment, as outlined, as closely as possible have had better than 80% of cures among nonpregnant patients with one course of treatment. A number reported that with the prompt relief of symptoms it was difficult to get some patients to return for adequate treatment. Several have limited treatment to use of the douche at home, and among these cases

4. Davis, C. H., and Grand, C. G.: Continued Studies on the Treatment of Trichomonas Vaginalis Infections, Am. J. Obst. & Gynec. **68**: 559-561, 1954.

very few cures have resulted. Few women have the type of douche equipment that makes possible the distention of the vagina needed to permit the solution to reach all portions adequately. The total incidence of irritation reported is under 2%, and several of the women who had irritation have been able to continue therapy with a greater dilution. Home treatment is not advisable during pregnancy, and therefore less than half of the pregnant patients who received some treatment were cured prior to delivery; however, most responded to treatment during the puerperium.

Inquiries regarding the manner in which women are accustomed to take a douche revealed that a high proportion have douched while standing in a shower stall or sitting on a toilet. It is evident that the physician or his office nurse must give explicit directions regarding the proper equipment and the manner in which the douche is to be used. I advise patients who have had a T. vaginalis infection to continue this douche two or three times each week indefinitely following their apparent cure, since the original source of the infection is not known. They are also advised to douche following coitus unless a pregnancy is desired. In vitro experiments show that sperm are inactivated in less than one minute by Carlendacide in the dilutions used clinically. Husbands of patients are advised to retract the foreskin and wash the penis with a 1:500 solution.

Carlendacide may be dispensed as a liquid or in a water-soluble jelly, cream, or paste, alone or combined with other chemicals as required for special problems. Limited experiments are being made with different preparations, but time will be required to determine the proper concentrations for special uses. The discovery that there is a synergistic action among polyoxyethylene nonyl phenol, a chelating agent, and a wetting agent has opened a new field for medical research. Experiments performed indicate that the usefulness of this new product extends far beyond the treatment of T. vaginalis infections.

SUMMARY

Study of series of private and clinic patients showed trichomonads present three and one-half times and malignant cells three and one-third times oftener in clinic patients than in private patients. Women with both malignant cells and Trichomonas vaginalis infection were, on the average, 15 to 16 years younger than those with malignant cells alone. A relationship between the conditions is suspected.

Tests of therapeutic agents in T. vaginalis infection indicated that application of sugar is unnecessary; neutral or alkaline solutions for vaginal irrigation are preferable to acid solutions; and synergism among polyoxyethylene nonyl phenol, a chelating agent, and a wetting agent makes this combination of agents (Carlendacide) an effective trichomonacide at low concentrations. Adequate office and home treatment can effect a cure of T. vaginalis infections, if limited to the vagina, within four weeks. Treatment of patients' husbands and continued treatment after cure as prophylaxis against reinfection from unknown sources are desirable.

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SURGICAL MANAGEMENT OF UNDESCENDED TESTES

REPORT OF 363 CASES

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and
Lawrence Chaffin, M.D., Los Angeles

This discussion of the surgical management of undescended testes is based on a review of the literature, a study of records of 363 patients from the Los Angeles Childrens Hospital, and our personal experience. One hundred sixty-two cases were previously reported [1] from this institution, and an additional 201 cases, from 1949 to 1954, are now reviewed. The conclusions in this paper are drawn, in the main, from this later series. An undescended testis is defined as one that has not passed from its origin below the kidney into the scrotum (fig. 1). This condition is determined by observation and palpation. In the broad sense, it includes retracted, true, false, and ectopic forms.

EXAMINATION AND TREATMENT

A glance at the scrotum or a quick palpation will indicate abnormal scrotal position in about 10% of newborn infants. In many of these babies, a clinical hernia will appear during the first few years of life. When the hernia becomes bothersome, early surgery is indicated. Definitive examination should be made with the child standing, before he reaches the age of 5. The examiner's fingers should be warm, and he should press in a downward direction along the inguinal canal toward the scrotum. If the testis can be felt, it is grasped by the fingers of the other hand and pushed into the scrotal neck. Under these circumstances, no surgery is indicated. If the testis can be felt but not pushed into the scrotal neck, it lies in the "superficial inguinal pouch," which is actually the commonest ectopic position; however, such a testis is usually considered to be lying in the inguinal canal.[2] "A testis that is in the inguinal canal cannot be felt through the skin. It is a soft, elongated, worm-like object, sunk in the soft floor of the canal, shielded from touch by the tense tendon of the external oblique."[3] This

From the University of Southern California School of Medicine and the Los Angeles Childrens Hospital (Surgical Service).

Read before the Section on Pediatrics at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 24, 1954.

1. Snyder, W. H., Jr.; Van Valin, W., and Chaffin, L.: Undescended Testes, California Med. **72**: 239-242, 1950.

2. Gross, R. E.: The Surgery of Infancy and Childhood: Its Principles and Techniques, Philadelphia, W. B. Saunders Company, 1953.

statement is of great importance, but it needs more general confirmation. Patients in whom the testis can be felt but cannot be pushed into the scrotal neck will need surgery as soon as the definitive diagnosis is made, since no amount of endocrine therapy or time will break the anatomic barrier. If no hernia is present and the testis cannot be palpated, it lies within the inguinal canal or abdomen. It is in this group of patients that endocrine therapy and/or surgery is indicated. If surgery is to be performed, we believe that it may be delayed until a little later in childhood. This group represents an important but small number of patients (19% of this series).

AGE AT WHICH SURGERY IS INDICATED

The age at which surgery was to be performed was determined in many cases by the necessity of operation on the concomitant hernia. Twenty-six per cent of the patients were operated on before they reached 6 years of age; 40% were from 6 to 11 years old, and 34% were 11 to 13 years old. The trend toward earlier surgery is based on several considerations. In recent histological studies, Robinson and Engle [4] suggest that unless the testis is placed in the scrotum before the patient reaches the age of 5 its spermatogenic function will not develop as adequately as it does in the mate. Increasing evidence from fertility studies of McCollum [5] and of Hansen [6] indicates that, although the degree of fertility is improved by orchiopexy in bilateral cryptorchism, it is not changed at all by surgery in unilateral cryptorchism. That is, such values as the number of sperm per cubic centimeter and the number of normal heads in patients with unilateral cryptorchism equal about one-half the values found in patients with normally descended testes. This lowered value is not improved by orchiopexy. Furthermore, it has been established by the capon comb growth test that androgenic function is not improved by orchiopexy.[7] The present satisfactory classification allows early selection of those patients needing surgery and tends to eliminate those in whom spontaneous descent may occur. Because of an improved clinical approach, operations for lengthening the cord have become as safe when performed in the first few years of life as when done at a later age, at least in those patients with a clinical hernia. Orchiopexy was performed on 21 patients ranging in age from 3 months to 4 years, with good results in 18 (86%) and fair results in 3 (14%). In the same operation performed on an equal number of patients 11 to 12 years of age, there were good results in 18 (86%), fair results in 2 (9%), and poor results in 1 (5%). We have also come to realize that a clinical hernia, which in itself requires surgery, will eventually develop in the majority of patients who have a true undescended testis. This was true in 134 of the 201 cases, or 67% of this series. The advantage of early elimination of concern about the condition in the minds of the child and parents is also a consideration.

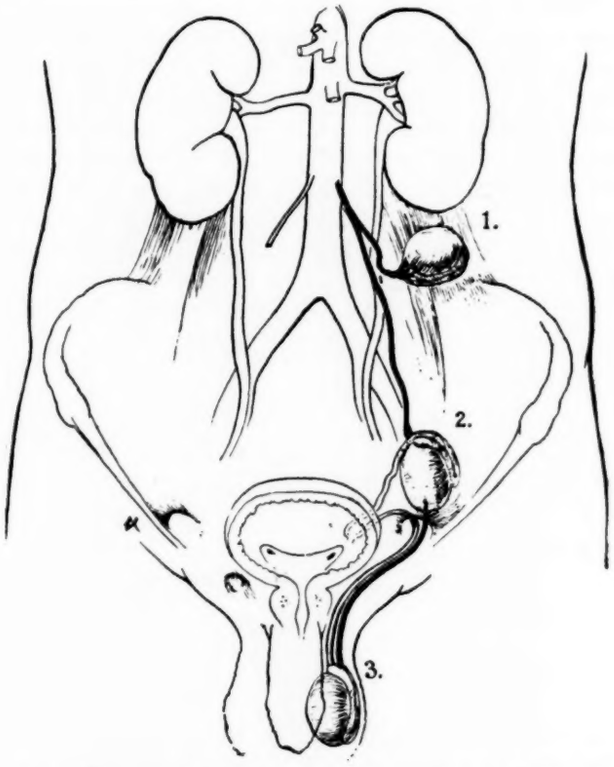

Fig. 1.—Diagrammatic representation of the position of the testis from its retroperitoneal origin beneath the kidney as it descends into the scrotum. In position 1 the testis is beneath the kidney, in position 2 it is entering the inguinal canal, and in position 3 it is in the scrotum. Arrest in this process may take place at any level. The main arterial supply from the aorta is shown, and the course of the vas deferens is indicated in positions 2 and 3.

General acceptance of the policy of operating on all persons with true undescended testes before they reach the age of 5 must await further experimental and clinical confirmation. With the now widely accepted policy of operating before the patient reaches puberty, good anatomic results have been obtained in about 90% of the cases in many series; however, final proof of the advantages of earlier operation in improving fertility still must be established. The possibility of the testis in a child without hernia and without a palpable gonad spontaneously descending as puberty approaches makes many physicians conservative in their treatment of this group. If action is needed, the administration of gonadotrophic hormone and early surgery appear to be rational forms of therapy in this group. Sometimes, however, even a surgeon is willing to await nature's decision in such matters. The most minor operative procedure carries some risk, and physicians tend to adopt a cautious attitude toward surgery, unless it is absolutely necessary.

TECHNIQUE

When there is a history of incarceration, management of the accompanying hernia becomes the chief concern of the surgeon. This was true in 21 cases in this series. Otherwise, his efforts are primarily directed toward lengthening the cord. This is mainly accomplished by severing the fibrous strands of the internal spermatic fascia that kink the vessels of the cord throughout its length. This feature of the operation requires skill, great

3. Browne, D.: The Diagnosis of Undescended Testicle, Brit. M. J. **2**: 168-171, 1938.

4. Robinson, J. N., and Engle, E. T.: Some Observations on the Cryptorchid Testis, J. Urol. **71**: 726-734, 1954.

5. McCollum, D. W.: Clinical Study of Spermatogenesis of Undescended Testicles, Arch. Surg. **31**: 290-300 (Aug.) 1935.

6. Hansen, T. S.: Fertility in Operatively Treated and Untreated Cryptorchidism, Proc. Roy. Soc. Med. **42**: 645-651, 1949.

7. Engberg, H.: Investigations on the Endocrine Function of the Testicle in Cryptorchidism, Proc. Roy. Soc. Med. **42**: 652-658, 1949.

care, and experience in handling these delicate structures, as injury to the internal spermatic artery usually results in atrophy of the testis.[8] Occasionally, all additional methods for lengthening the cord, such as subperitoneal and intra-abdominal freeing and severing of fascia about the deep epigastric vessels, are inadequate. Under these circumstances, the testis is fixed at the external ring, and, a year or two later, further lengthening can be accomplished. Seven patients in this series were treated by this two-stage mobilization procedure, and there were good results in all but one.

In 3% of the patients operated on in this series, no testis was found. A second abdominal incision for further exploration was not deemed advisable in childhood. If the cord can be lengthened so that the testis lies without any tension in the very bottom of the scrotum, nothing further need be done. On the other hand, if the testis can be made to reach the bottom of the scrotum, but when released draws slightly upward, sutures are placed through the gubernaculum and the testis held downward with a rubber band attached to the thigh (fig. 2).[9] This method is used at any age and was preferred in 90 cases in this series. However, if there is more than slight tension on the cord, the testis is attached directly to the fascia of the thigh. This was used in 106 cases in this series. It was not used before the patient reached the second year of life, but it was commonly employed thereafter. The expected danger of interference with the blood supply from tension on the cord was avoided by not attempting to bring the testis into the scrotum when the tension was too great. The follow-up study shows atrophy in only 2.3% of the patients thus treated.

Bilateral undescended testes were present in 9.4% of the patients in this series. The classifications given and the rules for surgical intervention are the same as those used in unilateral cryptorchism except that one side is operated on at a time. Furthermore, when neither testis can be felt and no clinical hernia is present, a course of gonadotrophic hormone preceding surgery seems advisable if operation is to be performed before the patient reaches the age of 5. If both the testes have failed to come down, it seems reasonable to assume that the hormones that cause descent may have been lacking in late fetal life. Occasionally the surgeon may find a small "testis" in the inguinal canal, whereas this actually represents the epididymis of a separated organ. The testis is always higher than the epididymis when the two are apart.[10] Time of hospitalization has been cut considerably in the last series as compared with the one first reported from this hospital. In the series ending in 1949, it was 18 days and, in the present series, 8.5 days. There have been no deaths in either series, and infection has never been a serious problem. No recurrent hernia has been found in the follow-up examinations. One hundred sixty-eight patients, or 84%, have been followed for six months to six years. The anatomic results were considered good in 95% of the patients. There were seven cases of complete agenesis of the testis, or at least no testis could be found. Including these cases, the results would be good in 93% of the patients. In the 19 patients with bilateral undescended testes, good anatomic results were obtained in at least one testis. Gonadotrophic hormone had been used in 39 patients in this series without success, but in none was there evident degeneration of the testis at the time of surgery.

COMMENT

We feel that the trend toward earlier surgery for hernia in infants should also be extended to surgery in those cases complicated by undescended testis. With added care and improved techniques, it is possible to do a good operation for undescended testis during the first few years of life. Examination should be made carefully. If the testis is palpable and can be pushed into the neck of the scrotum, no surgery need be contemplated. If the testis can be felt but not manipulated into the scrotum, early surgery before 5 years of age seems reasonable. No hormones need be given in these cases, as the examiner can preoperatively demonstrate an anatomic block to the passage of the testis into the scrotum. This thesis is based on the concept of the superficial inguinal pouch of Browne [3] and is worthy of emphasis.

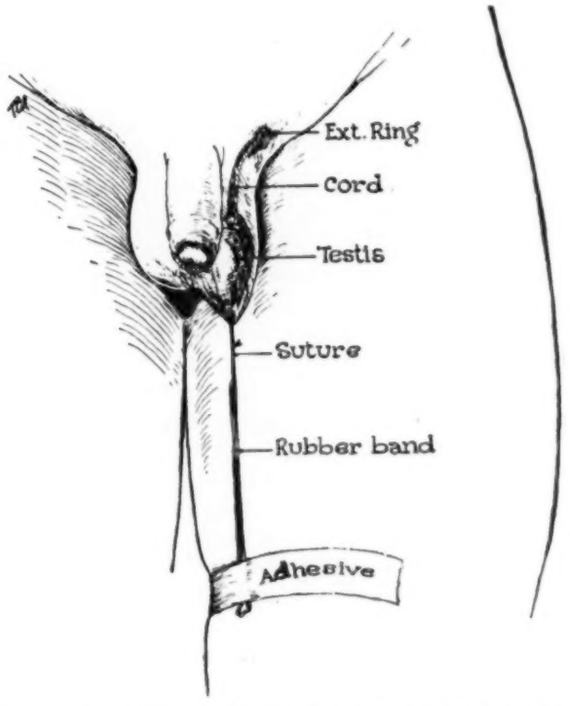

Fig. 2.—Attachment of traction suture to thigh. Complete lengthening of the cord has been completed. The testis rests easily in the bottom of the scrotum and is being held there by external traction for a seven day period following surgery.

It has been the practice of this hospital to defer surgery in those patients in whom there is no hernia and in whom no testis can be palpated until they reach the age of 10 or 12, or until the beginning of puberty. Anatomic results with this plan are good, but its effectiveness in improving fertility has been questioned. It is in this group that endocrine therapy may be tried. At present, until more evidence is at hand to support the contention of increased fertility with early surgery, we have not seen fit

8. Mixter, C. G.: Undescended Testicle, Surg., Gynec. & Obst. **39**: 275-282, 1924.

9. Cabot, H., and Nesbit, R. M.: Undescended Testis: Principles and Methods of Treatment, Arch. Surg. **22**: 850-856 (May) 1931.

10. Dean, A. L., Jr.; Major, J. W., and Ottenheimer, E. J.: Failure of Fusion of the Testis and Epididymis, J. Urol. **68**: 754-758, 1952.

to advocate it as a general policy, although we believe it to be worth while as a pilot investigation. Such studies are already under way in several institutions. No malignant disease has been found in this series. Orchiopexy has not been found effective in diminishing the incidence of neoplasm.[11] Since the frequency of occurrence is higher in patients with undescended testes [12] than in normal persons after the age of 21, the surgeon should be concerned with the "hidden testis" after this age.

SUMMARY AND CONCLUSIONS

From an examination of evidence in the literature and from a study of 363 patients operated on, we concluded that all patients with undescended testes who have a clinical hernia should be operated on by the time they reach the age of 5. Those patients in whom a testis can be palpated in the inguinal region but cannot be pushed into the neck of the scrotum should also be operated on by the time they reach the age of 5; however, in those patients with bilateral undescended testes, in whom there is neither a clinical hernia nor a palpable testis, endocrine therapy should be administered and early surgery should be performed on one side.

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11. Gilbert, J. B.: Studies in Malignant Testis Tumors: Tumors Developing After Orchidopexy: Report of Two Cases and Review of Sixty-Three, J. Urol. **46**: 740-747, 1941.
12. Carroll, W. A.: Malignancy in Cryptorchidism, J. Urol. **61**: 396-404, 1949.

USE OF IPRONIAZID IN NONTUBERCULOUS BONE AND JOINT INFECTIONS

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Iproniazid (Marsilid) is a newly developed chemical similar in structural formula to isoniazid (Rimifon, Nydrazid, etc.). It is still restricted to experimental use only and has not been released for general use. Its use and its benefits have been well established in tuberculous bone and joint lesions and reported in detail. Its efficacy in the treatment of tuberculous bone and joint lesions, as compared with that of isoniazid, has been investigated and reported. Though more toxic than isoniazid, iproniazid is much more effective, and its toxic effects can be controlled. No permanent damage has resulted from its use in over 100 cases, as regards either impairment of liver function or development of psychosis, the two major complications. During the experimental use of iproniazid in cases of bone and joint tuberculosis, many side-effects were noted. The clinical beneficial responses seen were reduction of temperature, marked increase in appetite, gain in weight, pain relief, wound healing (apparently regardless of infecting organisms), euphoria, and almost complete control of infections with Mycobacterium tuberculosis. Experimental work in duplicating the beneficial effects recorded above has been carried out on nontuberculous patients. For the purposes of this paper, the action of this drug in promoting wound healing in patients with nontuberculous bone and joint infections with draining wounds or sinuses will be reviewed.

STATISTICS

In 21 consecutive patients with draining nontuberculous lesions, osteomyelitis of a major bone was present; in many patients there was associated infection of nearby joints. The bones involved were 12 femurs, 4 tibias, 2 humeri, 2 spines, and one tarsal bone. Three of the patients with femoral infection had hip joint involvement as well, and one had an infected knee. In one patient with an infected humerus the adjacent shoulder was involved also. Four had hematogenous osteomyelitis; the other infections followed trauma or surgery. There were three children, two boys and one girl. Of the 18 adults, 11 were men and 7 were women. Twenty patients were white, and one was a Negro. The children's ages were 2, 7, and 8 years; the youngest adult was 27 years old, and the oldest adult was 80; the average age was 51 years. Since the infections present were all of serious import, many of prolonged duration and many with debilitating influence, the results obtained in this group of patients whose average age was well past middle life seem all the more remarkable. Many associated lesions were encountered in these patients. Arteriosclerosis, cirrhosis of the liver, chronic cystitis, syphilis, previous coronary disease, chest tuberculosis (not related to the bone infection), hypertensive cardiovascular disease, and many other disorders were encountered.

This study began in the spring of 1952 and was closed as to results May 1, 1954. Several of these patients were acutely ill; when first treated with iproniazid they had high fevers and were losing ground despite medication with antibiotics. Many of them had had long chronic sepsis, with debilitation, and apparently were doomed to its continuance. In view of the major bone infections present, and the resistance of the bacteria to antibiotics, none of these patients could be considered in good condition. Surgery accompanied medication with iproniazid in several instances. Despite this, and the fact that the study has been continued over a two year period without selection of cases, no deaths have occurred; nor is any patient at the present time in danger. Some of the patients were in such precarious condition at the time of initiating iproniazid therapy that the hope of saving them had been given up.

TOXIC EFFECTS

It is evident from the protocols of these patients that toxic effects arising from use of the drug had been well noted and well controlled in tuberculous bone and joint lesions prior to instituting this study. The ultimate neuro-

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toxic response due to the concentration of the drug in the spinal fluid in excess of that seen in the body tissues is the development of psychosis. Only two such psychoses were noted; these were mild and of short duration. Both patients were again treated with iproniazid, this time at a lower level of dosage, and both have now entirely recovered. Three patients had clinical signs of toxic effects on the liver, two of them with mild but frank jaundice. All three of these had had numerous transfusions previous to the institution of iproniazid therapy. There was some question as to whether hemolytic jaundice rather than iproniazid caused the condition. All of these patients have recovered, with no evidence of permanent liver function damage. One of these three patients had a well-established Laennec's cirrhosis known to be present before iproniazid therapy was begun; the medical service believed that his subsequent jaundice was part of a homologous serum hepatitis rather than a toxic chemical hepatitis. He, as well as the other two patients, completely recovered. Sympathetic neurotoxic symptoms such as dryness of the mouth, constipation, hesitancy, and loss of libido were much less common in this group of patients than in the patients previously treated for tuberculosis with this drug.

Laboratory and Roentgenographic Findings.—A review of laboratory findings concerning protein changes, calcium, phosphorus, urine, blood, etc., confirms findings previously reported in the study of patients with tuberculous osseous lesions receiving this medication. Iproniazid therapy had a tendency to lower the platelet count but caused no other noteworthy change. The previously known roentgenographic appearance of generalized skeletal decalcification seemed present in many of these patients after prolonged periods (three months or more) of medication. No explanation for this clinical roentgenographic finding has been made to date. Its use has frequently been of value, however, in denoting viable bone and demarcating dead fragments for contrast. Sclerosed areas of bone have appeared to decalcify, making visualization of enclosed sequestrums apparent, thereby permitting their surgical removal. Other roentgenographic findings related to iproniazid medication will be noted later.

Duration and Amount of Medication.—Iproniazid has been administered for from 1 to 20 months; the average period of medication was 6.4 months. Eight patients had rest periods during medication; these rest periods were from five days to six weeks; five were for temporary toxic symptoms, and three were in patients who stopped their own medication without our knowledge. In two patients, wounds closed and later reopened, necessitating renewal of therapy. The optimal dose per day seemed to be as near 4 mg. per kilogram of body weight as could be maintained without toxic effect. The average maximum dose that could be maintained was 3 mg. per kilogram. Only five of the patients could be held continuously at the full dose of 4 mg. per kilogram. The highest total dose was 123,000 mg., given over a 20 month period, and the lowest amount was 3,275 mg., over a 30 day period. In both of these patients, wounds healed, and neither had symptoms of toxic effects during medication or afterward. It is beginning to become apparent that cumulative effects or unfavorable sequelae due to prolonged medication do not appear in the use of this drug. The average amount of drug given was 35,586 mg. per patient.

Anesthesia and Surgery During Medication.—There has been some apprehension as to the employment of anesthesia on patients receiving iproniazid medication. Eight of these patients have had general anesthesia, and one of them has had spinal anesthesia. Tribromoethanol (Avertin), cyclopropane, thiopental, nitrous oxide, and ether were used. The patient who had spinal anesthesia received 2% tetracaine (Pontocaine) hydrochloride. Preoperative medication included morphine, atropine, and scopolamine. No abnormalities as to response to preoperative medication or anesthesia were noted. The operative procedures were all sequestrectomies except for one removal of a metal spline from a femur. No abnormalities as to wound bleeding or wound healing were noted; there were no complications after operation or during the operative period itself; and there was a definite reduction in postoperative pain. The above findings, plus our previous reports, should remove any hesitancy toward operating on such patients, except possibly with cocainization of the pharynx or trachea, which has been reported to be dangerous in conjunction with iproniazid therapy; to us this is just another indication of the well-known fact that cocaine is dangerous. Though all of the operations were carried out through infected areas, no postoperative temperature rises of note occurred in these patients receiving iproniazid.

Relation of Medication to Hospitalization.—Administration of iproniazid should be started during a period of hospitalization; it is noteworthy, however, that three of these patients received all of their medication as outpatients; most of the other patients received part of their medication after leaving the hospital. It appears that severe complications while the patient is taking iproniazid on an outpatient basis are not likely to occur once a balance as to optimal dose has been established. We have yet to see development of a single psychosis or any evidence of impairment of liver function in a patient under treatment at home. This is so despite the fact that signs of a toxic condition have often been seen in these outpatients (euphoria, dizziness, hyperreflexia, obstipation, etc.) and have required reduction of dose. Perhaps normal surroundings and activities prevent development of psychosis.

BACTERIOLOGICAL ASPECTS

Throughout the early part of this study we were attempting to translate the beneficial effects of wound healing noted in tuberculous bone and joint lesions with mixed infection to similar nontuberculous lesions. Our attention was focused not on the bacterial invasion of the wound but rather on the reaction of the wound to the drug given. During the study of tuberculous lesions, mixed infection contaminants were not considered of primary importance. Only Myco. tuberculosis was considered. It was noted, however, that a wide spectrum of other pathogenic organisms was present and that healing of lesions infected with the tuberculosis organism did not seem to be altered as to either percentage of closure or speed of healing by the presence of these other

pathogens. At first we believed the wound healing due entirely to the control of the tuberculosis bacilli and paid no attention to the secondary invaders; later the feeling developed that wound healing depended not so much on the control of bacteria present as on the action of the material on the body as a whole, and particularly on the mesodermal tissues. It is not yet known what the specific action of this drug is. The first experimental laboratory reports gave the impression that this chemical was specific only for Myco. tuberculosis. Later investigations have shown that other organisms seem to be susceptible to it, but in lesser degree. From our observation of the present series of cases, it is certain that complete control of the nontuberculous pathogens is not accomplished and that some, at least, continue to live in the tissues for months after wound healing has been accomplished but without clinically apparent pathogenic action.

There seems to be a much greater variation in the culture reports of the organisms from these sinuses than there was in the reports of Myco. tuberculosis from sinuses in the tuberculous patients previously studied. Where tuberculosis existed the discharges rapidly became negative for Myco. tuberculosis, though occasional cultures denoting viable bacilli were present. Finding of a positive culture once negativity for the tuberculosis organism had been attained was a rather rare occurrence. When noted, the reoccurrence of viable tuberculosis organisms was found for short periods of time only. This suggested that evacuation of an abscess protected from contact with iproniazid in the body tissues had occurred and that, following evacuation, sterilization of the sinus tract again was secured. In the present instance, with nontuberculous infecting organisms, continued positive culture reports are not rare, despite the rapid change in the nature of the discharge from purulent to serous or serosanguineous. At times cultures were reported sterile, then later cultures showed the original organism or some other one. In many cases cultures were consistently positive right up to the time of skin closure. No definite pattern or trend was denoted by cultures as to the control of pathogenic organisms in the wound in relation to the iproniazid medication. One organism, Proteus vulgaris, was not only cultured from a wound right up to the time of healing but found in the tissues, without clinical symptoms, on reoperation three and one-half months after healing. Primary healing occurred after reoperation as if no pathogen were present, though the wound was grossly contaminated.

PRIMARY HEMATOGENOUS OSTEOMYELITIS

Four of the patients treated have had primary hematogenous osteomyelitis. Draining sinuses in one of these patients had existed for 26 years despite numerous operations and many forms of antibiotic therapy. The infecting organisms in this patient were P. vulgaris and Escherichia coli. The wound closed 10 months after iproniazid therapy was started and remained closed for 6 months. Iproniazid therapy was stopped four months after closure; it should have been continued longer; two months later the sinus reopened. Iproniazid medication was begun again, and the sinus is now again almost closed. The organisms were resistant to practically the whole spectrum of antibiotics.

The other three patients with primary hematogenous osteomyelitis had relatively recent infections, from one to three months old. All three showed Micrococcus pyogenes var. aureus. One of them in addition had P. vulgaris. In all three the organisms had become totally resistant to most antibiotics and were almost completely resistant to the others. The most remarkable changes occurred not as regards the bacterial infestation, but as regards the wounds themselves and the patients' general condition. Development of sequestrums, though to be expected, did not occur in two of the three. In one, the roentgenograms showed several areas denoting sequestration to regress and the sequestrums to be resorbed. Though the whole humerus was involved in this patient, only two sequestrums were finally removed; the wound is healed. The other two patients are still under treatment; their wounds are steadily closing. Both of them have involvement of the whole femur and previously had had wide drainage extending its entire length. In one of them the femoral head had separated from the shaft; yet it has not become necrotic, but has gradually resumed the same texture as the rest of the shaft and reunited to it, though with changes in its outline. The other patient, who was a 30-year-old woman, had a temperature of 105 F when iproniazid therapy was begun, and her situation was desperate; the hip had dislocated from the associated suppurative arthritis. The temperature was reduced to essentially normal within three days and has remained normal since. The problem has been changed from saving the patient's life to reconstruction of the dislocated infected hip.

In addition to the apparent suppression of sequestrum formation, a decided tendency toward increase of normal involucrum formation has been noted. This is especially noteworthy in the 30-year-old patient. In these patients with fresh hematogenous osteomyelitic infections involving the whole length of a humerus and two femoral shafts (the two femurs having in addition been weakened by surgical drainage from one end to the other) pathological fractures were to have been expected; none occurred. This is in line with our previous experience that, though generalized demineralization of the skeleton appears to take place after prolonged iproniazid therapy, no fractures occur.

In summary, there were four patients with hematogenous osteomyelitis. The infecting organisms in all were resistant to the common antibiotics, and the status of all four patients was either stationary or gradually becoming worse under such therapy. In one patient the wound is healed completely; in one the wound healed, reopened, and is healing again with iproniazid medication; the other two are still being treated, and their wounds are steadily becoming cleaner. One of them, an adult, was expected to die, but her temperature was reduced within 72 hours, and her condition is now excellent. A notable change in general condition occurred in all four, with return of appetite, relief of pain, and gain in weight.

SECONDARY POST-TRAUMATIC OR POSTSURGICAL OSTEOMYELITIS

Among the 17 patients with secondary osteomyelitis following trauma or surgery, the infecting micro-organisms presented considerable diversity. There were present

hemolytic and nonhemolytic M. pyogenes var. aureus, hemolytic M. pyogenes var. albus, Streptococcus hemolyticus and Streptococcus viridans, Aerobacter aerogenes, Pseudomonas aeruginosa, coliform bacilli including Esch. coli, diphtheroids, and P. vulgaris. Often several types of bacteria were present in the discharge from a single wound. No definite evidence of specific bactericidal or bacteriostatic activity due to the iproniazid could be demonstrated. Wound healing indicated that there was a definite change in the pathogenicity of the infecting organism in relation to the tissues involved after iproniazid therapy; whether this was due to the effect of the chemical on the bacteria or on the tissues is undetermined.

Resistances were tested to penicillin, chlortetracycline, oxytetracycline, chloramphenicol, erythromycin, sulfanilamide, polymyxin, bacitracin, tetracycline, nitrofurantoin, streptomycin, and the sulfonamides. In all of the patients, marked resistance to several of the antibiotics had developed. The bacteria were not universally resistant to all of the antibiotics used, but most were completely or partially resistant over a wide spectrum. Extensive as this study has been, it has been based more on clinical research than on bacteriological study; to the present, no attempt to secure findings as to development of resistance of the organisms to iproniazid has been carried out. One reason for this is the fact that during medication steady and often dramatic improvement has been the rule. This has been so not only as to wound healing but as to other gains obtained, namely, control and reduction of temperature, relief of pain, improvement in nutrition, and promotion of weight gain. Actually the pressure of surgical practice has prevented more intensive laboratory study.

RESULTS

The favorable results produced by the use of iproniazid in patients with nontuberculous infections of bone and joint have been so great that even the skeptics on our staff have been won over. If in such a patient temperature can be reduced, pain alleviated, appetite reestablished, and weight gain promoted, a considerable portion of the battle of infection is already won. The situation resembles that previously reported where, in similar lesions, the infecting organism was Myco. tuberculosis. If time can be gained by general bodily improvement a reprieve is granted the patient regardless of the healing of the specific wounds. If in addition wound healing is stimulated and infection controlled, so much the better. General improvement in these patients has been so marked and so constant that we no longer have the depression and sense of frustration that we previously experienced on encountering such lesions; they now seem to us a problem that in great part can be solved, rather than a disaster to be followed by prolonged or permanent sepsis with its sequelae.

From a clinical aspect, the final proof of the effectiveness of iproniazid medication is the healing of open lesions. In 13 of these 17 patients, the wounds or sinuses are completely healed, and give every indication of remaining healed. In two other patients, wounds healed, reopened after iproniazid medication was stopped, and are again showing favorable response to the drug. Three patients have not been cured by iproniazid therapy. One of these has a trophic ulcer of the foot following fracture of the tarsal bones 24 years ago. In another patient drainage continues through a pinhole sinus from a knee ankylosed and infected 15 years ago. The third patient had a compound fracture of the tibia 10 years ago; though discharge decreased markedly and his general condition improved, his wound did not completely heal, and medication with iproniazid was finally stopped. Several months later, resection of a 2 in. (5 cm.) section of the tibial shaft disclosed an imbedded sequestrum; after this resection, the wound promptly healed. The patient is now awaiting pedicle skin graft, to be followed by bone graft repair of the defect.

Four wounds of the 13 that have healed and remained healed closed over metal. Two of them healed with a Vitallium Jewett nail and screws still in place. A third healed with a loop of tantalum wire in situ. The fourth healed over a 6 in. plate and screws. From previous experience we could not have envisaged the closing of such wounds over metallic fixation, especially metal implants of such size. In only 2 of the 13 patients whose wounds healed was surgery used to assist in wound closure. One of these patients had a sequestrectomy of the femur, the sequestrum being demarcated by the bony atrophy caused by the iproniazid, thus permitting its visualization. Marked sclerosis of the femoral shaft was present, denoting widespread infection beyond the limits of the sequestrum, which was still firmly attached. Viable bone was sectioned and infected at the time of this surgery, yet healing promptly occurred. The other patient had removal of a hip spline and screws when her wound was almost closed; her incision healed by primary intention, although the wound was contaminated with M. pyogenes var. aureus at the time. In other words, of the 13 patients whose wounds healed, 11 recovered without surgical intervention, dependent on iproniazid therapy and normal bodily healing processes alone. It is probable that several of these wounds would have healed eventually if given time; from our experience, however, we are sure that without iproniazid medication many of them would have gone on to prolonged or permanent suppuration.

Of the 13 patients whose wounds have healed, 8 had infections that we considered hopeless as to outlook and as to control. These involved five femurs, two tibias, and one humerus. All of these patients were adults; the youngest was 41 years of age, and the oldest 80; the average age was 56 years. Reflecting upon the changes that occurred both in general condition and as to wound healing, it seems to us that following the introduction of iproniazid therapy the response that occurred resembled that seen in similar wounds in adolescence. In other words, the tissue age response of these patients, as far as their wounds were concerned, was markedly lowered.

CONCLUSIONS

This paper must be considered as a pilot study in the use of iproniazid (Marsilid) for serious nontuberculous bone and joint infections resistant to the common antibiotics; further intensive bacteriological study will have to be done. Benefits, in the main, seem to be due to improvement of general condition throughout the body tissues promoted by the use of iproniazid. Specific action

on bacteria or bacterial propagation (aside from Mycobacterium tuberculosis) is probably not of as great import as certain unexplained effects on body tissues. Surgery, when indicated, must accompany the use of this drug. Antibiotics take precedence in the treatment of such lesions until resistance develops. A potent new drug has been added to our armamentarium for assistance in the final control and healing of nontuberculous bone and joint lesions.

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CHLOROQUINE IN TREATMENT OF LICHEN PLANUS AND OTHER DERMATOSES

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Chloroquine phosphate, primarily an antimalarial and amebacidal drug, has been used with considerable success in the treatment of chronic discoid lupus erythematosus [1] and in actinic dermatitis.[2] Because of its efficacy in these dermatoses, it was almost inevitable that it would be used in other dermatoses on an empirical basis. We first became interested in trying it in other dermatoses after using it with considerable benefit in a case of lichen planus. This, of course, led us to try it first in other cases of lichen planus as they became available and subsequently in a variety of unrelated dermatoses that had been treatment problems.

METHOD AND RESULTS

Chloroquine (Aralen) phosphate (tablets 250 mg., containing 150 mg. of chloroquine base) was prescribed to be taken orally, usually twice daily for one week, then once daily. In a few cases, the twice daily dose was continued beyond one week or was resumed after having been reduced. Conditions studied included lichen planus, verruca, psoriasis, atopic dermatitis, and localized neurodermatitis, as well as isolated examples of a few other entities. A total of 53 patients are included in the present report.

Lichen Planus.—Seven patients with lichen planus were treated with chloroquine. There were generally satisfactory results in five and equivocal or unsatisfactory results in two. In addition, one patient, who had had pruritic lichen planus the preceding year and who had pruritus without lesions when seen by us, had considerable relief of the pruritus while taking chloroquine. The first patient in whom the drug was used was a woman with long-standing severe involvement of the mucosa of the buccal surface, tongue, lips, and vulva with lichen planus. She was extremely uncomfortable because of a marked burning sensation of the lips. Prolonged treatment with fractional doses of superficial roentgen rays and injections of bismuth sodium *p*-aminophenylarsonate (Arsenobismulak) and cyanocobalamin (vitamin B_{12}) failed to bring about any improvement. Marked subjective improvement occurred within one week after administration of chloroquine was begun. The condition did not entirely clear, but the relief of symptoms was gratifying. The action was chiefly palliative, however, inasmuch as the symptoms gradually returned after use of the drug was discontinued.

Another woman with long-standing lichen planus involving the thighs and vulva and with intense vulvar pruritus showed rather marked relief of the pruritus and objective improvement of the vulvar lesions within about two weeks. She discontinued use of the medicament after a month because of visual disturbance and was still free of itching 10 days later, although the eruption was still present. A man with extensive nonpruritic lichen planus, chiefly on the legs and feet, showed no change after two weeks of therapy but marked clearing of the eruption after five weeks. He continued treatment for three additional weeks and then failed to return for observation. When he was seen five months later, his skin was entirely free of activity, except for two minute lesions, and he stated that his skin had continued to clear since he was last seen and had remained essentially clear.

A woman with extensive lichen planus, including circinate palmar and plantar lesions, hypertrophic lesions on the legs, and involvement of the tongue and buccal mucosa, of six months' duration, began to improve after two weeks of chloroquine therapy, and her skin, except for remnants on the legs, was clear after another month. Three months after discontinuance of treatment, her skin remained completely clear except for a few lesions on the legs and ankles and slight remnants in the mouth. Three patients in this group complained of dizziness or visual disturbances, two only when the drug was taken twice daily. Gastric distress developed in one patient. From the small number of cases we cannot draw any statistically significant conclusions, but the fact that relatively prompt subjective improvement occurred in recalcitrant patients encouraged us to continue the use of chloroquine in other cases of lichen planus and to extend the study to other entities on a purely empirical basis.

Verruca.—Ten cases of warts, occurring in nine patients, were treated with chloroquine. The results were highly satisfactory in four cases, moderately so in two,

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1. (*a*) Goldman, L.; Cole, D. P., and Preston, R. H.: Chloroquine Diphosphate in the Treatment of Discoid Lupus Erythematosus, Clinical Notes, J. A. M. A. **152**: 1428 (Aug. 8) 1953. (*b*) Pillsbury, D. M., and Jacobson, C.: Treatment of Chronic Discoid Lupus Erythematosus with Chloroquine (Aralen), ibid. **154**: 1330 (April 17) 1954.

2. Knox, J. M.; Lamb, J. H.; Shelmire, B., and Morgan, R. J.: Light Sensitive Eruptions Treated with Atabrine and Chloroquine, J. Invest. Derm. **22**: 11 (Jan.) 1954.

and unsatisfactory in four. There were three patients with juvenile flat warts, two with multiple plantar warts (one patient had both types of warts), two with verruca vulgaris, two with periungual warts, and one with filiform warts of the beard. Highly satisfactory responses occurred in one case each of periungual, juvenile flat, filiform, and plantar warts. The condition of a 14-year-old boy with large numbers of discrete and confluent warts of two months' duration, involving an extensive area of the right sole, cleared completely after six or seven weeks of treatment, and his skin was still clear two months after the use of chloroquine was discontinued. No other form of treatment was given. Interestingly enough, a number of juvenile flat warts of the hands in this same patient failed to respond to treatment. Another 14-year-old boy with extensive periungual warts of two years' duration, involving several fingers, received a regimen of 250 mg. of chloroquine once daily. After three weeks, no change had occurred, but after an additional four weeks his skin was 90% clear. Two weeks later his skin was considered 99% clear, and local therapy, consisting of the application of solid carbon dioxide to several tiny remnants, was used for the first time. Three weeks later there was no sign of activity, and his skin was still clear after an additional two months.

A man with very extensive involvement of the bearded area with filiform warts of two years' duration was markedly improved after two weeks of treatment with chloroquine, and the involved area was completely clear after another two weeks. He stated that the lesions began to itch and turn red about three days after the start of treatment and began to disappear after the first week. His skin was still clear six months later. A 13-year-old girl with many juvenile flat warts on the chin, of two years' duration, which had failed to respond to various forms of treatment from other physicians, including fractional roentgen ray therapy, carbon dioxide slush, and bismuth injections, received chloroquine therapy. Her skin cleared completely after about two weeks and was still clear five weeks later. In the interest of objectivity, it should be noted that three of these four cases in which the results were excellent occurred in teen-aged children. In view of the well-known unpredictable behavior of warts, undue enthusiasm is certainly not warranted when the small number of cases is considered. It could be argued that the apparently satisfactory results were due to suggestion or to spontaneous clearing. Nevertheless, the response was sufficiently satisfactory to indicate continued trial. No adverse reactions occurred in this group.

Psoriasis, Atopic Dermatitis, and Localized Neurodermatitis.—Seven patients with psoriasis were treated with chloroquine, and the response was unsatisfactory in all. There were two instances of dermatitis medicamentosa that will be described in greater detail later in the paper. One of these patients showed apparent temporary improvement in the psoriatic lesions concomitantly with the severe drug eruption. The over-all results in psoriasis were thus completely unsatisfactory. Six patients with atopic dermatitis were treated, with moderate improvement in four and unsatisfactory results in two. The palliative effect in relieving pruritus was rather striking in some instances. Eight patients with localized neurodermatitis were treated with chloroquine; four showed definite improvement, and the others showed little or none.

Miscellaneous Dermatoses.—Probable pemphigus in a 90-year-old man, with bullae localized to the face, neck, and ears, scrapings from which gave a moderately positive Tzank test for acantholytic cells, showed a moderately good response to chloroquine but relapsed when use of the drug was discontinued. At the time of writing, he has been taking chloroquine for about six months, and his skin has been maintained nearly free of lesions, although a dose below 250 mg. daily results in some degree of activity. The suppressive effect in this patient suggests that chloroquine should be tried in clear-cut cases of pemphigus vulgaris, either alone or as an adjunct to corticosteroid therapy. A patient with lymphosarcoma (mycosis fungoides) showed no response in three weeks, and treatment had to be discontinued because of a severe drug eruption. Two patients, one with dermatitis herpetiformis and the other with neurotic excoriations, failed to respond to treatment. A patient with extensive localized scleroderma (morphea) lesions appeared to have appreciable softening of the most indurated lesion after six weeks of treatment. Administration of the drug is being continued. A patient with recalcitrant vesiculopustular eruption of the soles has shown prompt and definite improvement from therapy. One patient with an eczematoid dermatitis of the hands and wrists showed no response to the drug and complained of lassitude. Four patients with eczematoid dermatitis of unknown cause, chiefly of the extremities, showed a moderate response. In two cases of chronic contact dermatitis, one patient received moderate benefit and one received none. A patient with cheilitis of undetermined cause (not actinic) showed marked benefit, as did a patient with light-sensitive dermatitis. The drug seemed to exert a certain degree of antipruritic and/or anti-inflammatory effect on various eczematous and pruritic dermatoses that was apparent only while it was being given.

REACTIONS TO TREATMENT

Since previous investigations [3] have indicated the relative safety of chloroquine, laboratory studies in our series were in most cases limited to complete blood cell counts. Toxicity studies during prolonged administration of chloroquine, by Alving,[3a] revealed such manifestations as subjective difficulty in visual accommodation, headaches, mild weight loss, bleaching of the hair in blond subjects, and electrocardiographic changes characterized by T-wave depression. The latter was considered to be nonspecific and not clinically significant. Two cases of relatively mild lichenoid dermatitis occurred in that series. Alving and his co-workers found no abnormalities in the blood cell count or urinalysis. Liver and kidney function tests were normal, as were temperature, pulse rate, blood pressure, and neurological examination. In our series there were six instances of minor side-reac-

3. (*a*) Alving, A. S., and others: Studies on Chronic Toxicity of Chloroquine (SN-7618), J. Clin. Invest. **27**: 60 (May) 1948. (*b*) Craige, B., Jr., and others: A Lichen-Planus-like Eruption Occurring During the Course of Chloroquine Administration, ibid. **27**: 56 (May) 1948. (*c*) Haydu, G. G.: Rheumatoid Arthritis Therapy: A Rationale and the Use of Chloroquine Diphosphate, Am. J. M. Sc. **225**: 71 (Jan.) 1953. (*d*) Goldman and others.[1a] (*e*) Pillsbury and Jacobson.[1b] (*f*) Knox and others.[2]

tions. The most common complaint was a visual disturbance, usually described as difficulty in accommodation. This symptom, alone or with symptoms described variously as dizziness or "wooziness," occurred in four patients, in two of these only when the drug was taken twice daily. One of these patients also had gastric distress. There was one case of lassitude and one of diarrhea. No instances of blood dyscrasias were observed. There were three cases of severe dermatitis medicamentosa and one milder case. Since the only previous reports on drug eruptions from chloroquine described a rather mild lichen-planus-like or lichenoid dermatitis resembling that caused by quinacrine (Atabrine) hydrochloride,[3b] brief reports will be given of these four cases because of their entirely different clinical appearance.

REPORT OF CASES

CASE 1.—A severe pruritic and burning eruption developed in a 64-year-old man with extensive plaques of mycosis fungoides, about two and one-half weeks after chloroquine treatment was begun. The eruption was generalized and consisted of bright, erythematous, discrete, and confluent maculopapular lesions. A moderate leukocytosis developed, but the blood cell count was otherwise not remarkable. Administration of the drug was discontinued, and the eruption responded to cortisone therapy.

CASE 2.—A severely pruritic eruption developed in a 23-year-old man with extensive psoriasis two weeks after chloroquine treatment was begun. The eruption was generalized and consisted of bright erythematous to violaceous macular and maculopapular, discrete and confluent lesions. The patient reported having had a temperature elevation to 102 F at one point in the course of the eruption. There was a mild leukocytosis but no other blood cell count changes. The eruption subsided after discontinuance of chloroquine therapy, and the patient responded to cortisone therapy. The extensive psoriatic lesions showed rather marked temporary improvement during the course of the drug eruption.

CASE 3.—A severely pruritic eruption developed in a 45-year-old man with extensive psoriasis, after about three and one-half weeks of chloroquine therapy. He had a severe, blotchy, erythematous, maculopapular eruption scattered over the trunk and extremities. The blood cell count was about normal. Administration of the drug was discontinued, and cortisone acetate was prescribed. The drug eruption then subsided.

CASE 4.—A pruritic, moderately erythematous, fine, papular eruption limited to the face, shoulders, neck, and axillas developed in a 17-year-old girl with eczema nuchae 15 days after chloroquine therapy was started. The eruption subsided after use of the drug was discontinued, and the patient responded to administration of cortisone.

In each of these four cases, chloroquine was the only drug being administered at the time the drug eruption occurred. Each patient had received 500 mg. of chloroquine phosphate daily the first week and 250 mg. daily thereafter until administration of the drug was discontinued. Although it was not done in these cases, the oral administration of ammonium chloride in a dose of 8 gm. daily would be desirable in cases of drug eruption caused by chloroquine, since the renal excretion of chloroquine is increased substantially by acidification of the urine.

COMMENT

We fully realize that the number of cases studied is entirely insufficient for any definitive conclusion to be drawn from them. This is considered to be a preliminary report, and it is hoped that it will stimulate the further trial of chloroquine, particularly in cases of lichen planus and verrucae. Its use as an antipruritic and antieczematous drug should also be studied further. It is worth noting that in some of the cases of lichen planus objective improvement in the eruption did not occur promptly even though symptomatic benefit was noted. Therefore it would seem advisable to continue therapy with the medicament for several weeks before concluding that it is ineffective in a given case. In the two cases out of seven in which the results were classed as equivocal or unsatisfactory the patients had not been followed long, and the classification might eventually be changed.

In most instances, the patients with warts did not show prompt objective improvement. Several patients responded only after several weeks, but, considering the extensive and long-standing involvement in, for example, the case of multiple periungual warts of two years' duration, the relative benignity of the treatment, even if slow, would suggest that an adequate trial be given to chloroquine in problem cases of warts. In attempting to provide a rationale for the successful use of chloroquine in rheumatoid arthritis, Haydu [3c] proposed that chloroquine inhibited the requirements of the tissues for adenosine triphosphate. Discussion as to a possible rationale in the dermatoses under consideration should await confirmation of the drug's effectiveness. The rather high incidence of dermatitis medicamentosa in this study is apparently at variance with the experience of others using chloroquine. This should serve as a warning that, although the drug is apparently much less prone to cause adverse reactions than quinacrine hydrochloride, its use should nevertheless be attended with reasonable caution.

SUMMARY AND CONCLUSIONS

Chloroquine, tested empirically in several dermatoses, was effective in some cases of lichen planus and verruca yet has failed in others. The number of favorable responses in these two conditions was sufficient to encourage further investigation, but the number of patients treated is far too small for statistical evaluation. The drug was of no benefit in psoriasis. It appeared to exert an antipruritic or anti-inflammatory effect in a few cases of pruritic and eczematous dermatoses of various types. Chloroquine caused a severe dermatitis medicamentosa in three patients and a less severe eruption in one other. The clinical appearance of the eruption was similar in the three severe cases and in all four differed from that previously reported. We consider the results of chloroquine therapy in some of the conditions studied to be encouraging enough to warrant continued study, and this is currently being done.

ADDENDUM

Since this paper was submitted for publication, four other cases of rather severe dermatitis medicamentosa have occurred in patients after administration of chloroquine. These dermatoses followed a pattern similar to that occurring in the patients mentioned previously. However, of special interest is the fact that methemoglobinemia (5.1%), associated with weakness and shortness of breath, developed in one of these patients. The onset of the eruption occurred after only six days of chloroquine administration. The patient had an uneventful recovery after withdrawal of the drug. To our knowledge, this is the first instance of methemoglobinemia due to chloroquine. A more detailed report will be made later. The need for caution in administering this seemingly useful drug is thus further emphasized.

2007 Wilshire Blvd. (57).

CLINICAL NOTES

THE SEQUENTIAL OCCURRENCE OF ACUTE THYROIDITIS AND THYROTOXICOSIS

Raymond F. Sheets, M.D., Iowa City

Acute thyroiditis has become more clearly defined since it has been possible to study [1] thyroid function with radioactive iodine and protein-bound iodine of the blood in addition to the usual clinical studies. For many years clinicians have suspected that some patients with thyroiditis had increased metabolism. No one has demonstrated overt thyrotoxicosis by clinical examination or laboratory findings. One explanation [2] for hypermetabolism is that during the course of the thyroiditis there is some destruction of tissue, with release of thyroid hormone. This produces temporary hypermetabolism directly after thyroiditis, but it does not progress to clinical thyrotoxicosis. Nervousness, tremor, weakness, excessive perspiration, heat intolerance, and palpitation have been explained on this basis. Crile and Rumsey [1a] described seven patients with these symptoms. Their basal metabolic rates ranged from –8 to +28%. The patient with the highest value was free of symptoms soon after roentgen therapy for thyroiditis. Two months later the basal metabolic rate was +10%. The purpose of this paper is to describe the occurrence of frank thyrotoxicosis in a young woman four months after complete subsidence of acute thyroiditis.

REPORT OF A CASE

A 37-year-old white woman was first seen by me Aug. 25, 1952. She complained of pain in the neck of six weeks' duration. The illness began with a sore throat and pain on the sides of her neck. She had no chills and was aware of no fever. The pain finally localized in the anterior basal region of the neck and radiated laterally to the ears. The muscles of the neck were stiff and painful. Sharp pains radiated from the base of the neck up behind the ears. The patient seemed normally energetic, but the pain in her neck caused her to cry easily. There was no evidence of a depressed mood. She had no difficulty swallowing but did have some nausea. The physical examination revealed a well-developed, well-nourished woman who appeared ill. The left lobe of the thyroid gland was hard and nodular. The size was estimated to be twice normal. The right lobe contained a nodule 1 cm. in diameter. Tenderness was severe over the left lobe. The blood pressure was 120 mm. Hg systolic and 80 mm. Hg diastolic. There were no physical signs of thyroid dysfunction, and the remainder of the physical examination revealed no abnormalities.

On Aug. 26, 1952, x-ray therapy was begun. The patient received 550 r to each side of the thyroid in daily doses of 100 r. The next day no change was noted in the thyroid gland. On Aug. 28, the pain and tenderness over the thyroid gland was the same except that it was more severe on the right. The patient stated that she was quite easily fatigued. The next day she was better generally and her neck was less painful. The nodule in the left lobe was still tender. On Sept. 2, a marked decrease in the degree of tenderness was noted. The nodules in the gland, though very hard, were smaller. Subjectively, the patient was improved. On Sept. 12, the patient stated that she had continued to improve until Sept. 9, when she had noted recurrence of the nagging pain in the neck. During attendance at a circus the pain in the neck became worse; it extended over the neck into the face and scalp and behind the ears. Aspirin gave partial relief. The second course of x-ray therapy was begun, 400 r to each side of the thyroid in daily doses of 100 r. On Sept. 21, the patient reported that the pain had continued through Sept. 17 and had then begun to subside. The left lobe was normal to palpation. The patient complained of some spontaneous pain over the right lobe, but the left was tender only on palpation. On Sept. 29, the patient reported that on the morning after her last visit she had awakened with severe pain over the right side of the neck and head. This was the most severe pain since her disease began. On this visit she cried easily and complained of anorexia and some weight loss. Aspirin gave slight relief. The pulse was 100 per minute and the blood pressure 120/80 mm. Hg. The left lobe of the thyroid was normal to palpation, and no nodules were felt. The right lobe was very tender, four times normal size, hard, and nodular. The tenderness extended to the midline. On Oct. 3, there was very little change. The pain was unchanged. The patient was sleeping somewhat better with the use of aspirin, her appetite was fair, and she had no other difficulties. She could move her head more than pre-

Laboratory Data in Case Reported on

Date	Hemoglobin, Gm./100 Ml.	Leukocytes per Cubic Millimeter	Erythrocyte Sedimentation Rate (Westergren), Mm./Hr.	Protein-Bound Iodine, Mcg./100 Ml. of Plasma	Basal Metabolic Rate	I^{131} Uptake 4 Hr.	I^{131} Uptake 24 Hr.	Therapy
1952								
Aug. 25	13	4,250	38	...	— 7%	7%	12%	.....
Aug. 26	....	.....	..	7.5	.....	....	....	First course roentgen therapy begun
Sept. 2	....	.....	37	...	.....	....	....	.....
Sept. 12	11.6	9,800	66	7.8	.....	7%	....	Second course roentgen therapy begun
Sept. 29	11.7	9,700	65	...	.....	....	....	.....
Oct. 13	11	.....	45	...	.....	....	....	.....
Nov. 24	....	.....	..	...	.....	19%	20%	.....
1953								
May 4	12.5	7,800	..	12.1	.....	69%	80%	.....
May 7	....	.....	..	...	+32%	....	....	2.65 mc. I^{131} taken up in 24 hours
May 17	....	.....	..	8.2	.....	....	....	.....
Sept. 28	13	9,500	7	5.3	—16%	27%	38%	.....

From the Department of Internal Medicine, College of Medicine, State University of Iowa.

1. (*a*) Crile, G. Jr., and Rumsey, E. W.: Subacute Thyroiditis, J. A. M. A. **142**: 458-462 (Feb. 18) 1950. (*b*) Hamilton, H. E.; Kirkendall, W. M., and Barker, S. B.: Radioactive Iodine Uptake of the Thyroid and Plasma Protein Bound Iodine in Subacute Thyroiditis, J. Clin. Invest. **29**:819 (June) 1950.

2. Wyngaarden, J. B.: Antithyroid Drugs and Acute Thyroiditis, New England J. Med. **245**: 706-707 (Nov. 1) 1951. Crile and Rumsey.[1a]

viously. The left side of the gland was not tender to palpation, but a few small nodules were felt; tenderness had extended farther to the left. The right side was little changed.

On Oct. 13, the patient felt well and was cheerful; her appetite was good. The left lobe of the gland was normal; the right lobe was smaller and smoother but still moderately tender to palpation. On Nov. 25, the patient was asymptomatic and had gained 9 lb. (4.1 kg.). Her movements were slower, but the alternate motion rates were normal. The skin was smooth and warm but felt thickened. Although the thyroid gland was rough and palpable, there was no tenderness.

The visit on May 4, 1953, was planned in order to seek signs of myxedema; instead, evidence of hypermetabolism was found. About April 1, the patient had noted some nervousness, but in general she had been feeling very well. She had lost 17 lb. (7.7 kg.) intentionally and remarked that it was extremely easy to do on an unrestricted diet. She had no difficulty sleeping except for some spells of crawling sensations of the skin; these would subside and she could go back to sleep easily. There was considerable heat intolerance and excessive perspiration. The patient complained of a severe tremor of the hands and cardiac palpitation. The skin was warm and moist. The blood pressure was 135/80 mm. Hg. The pulse rate was 100 per minute. There was a fine tremor of the outstretched hands and the tongue. There were no eye signs other than a slight stare. The thyroid gland felt granular; the right lobe was large and firm but not hard or nodular; no nodules were felt in any portion of the gland. Following this examination it was apparent that the patient had a diffuse toxic goiter. Three days later she was treated with 4 mc. of I^{131}; the measured uptake was 2.65 mc. in 24 hours. On May 17, she was feeling better and had less tremor. The heart was still pounding. The gland felt unchanged.

By July, 1953, the patient was feeling well again and her symptoms had completely abated. On Sept. 28, she was asymptomatic and again had difficulty preventing undue weight gain; she appeared healthy. There were no eye signs. The alternate motion rates of the extremities were normal. The thyroid gland was normal in size although the right lobe was slightly easier to feel than the left; no nodules were felt. The blood pressure was 120/80 mm. Hg, there was no cardiac overactivity, and the pulse rate was 80 per minute. The skin was normal.

COMMENT

This is a classical story of acute thyroiditis with typical physical findings. The triad of an increased erythrocyte sedimentation rate, a normal or high concentration of protein-bound iodine in the plasma, and a low uptake of radioiodine by the thyroid gland is characteristic of the disease.[1b] All were found in this patient. The course was severe. The usual good response to x-ray therapy was diminished. Four months after complete recovery from thyroiditis, the patient showed symptoms of typical thyrotoxicosis. The response to treatment with radioiodine was excellent. One explanation of the sequential occurrence of these two diseases in the same patient in such a short time is coincidence. I have no physiological explanation. This sequence should stimulate search for more definite association.

University Hospitals.

Physicians as Citizens.—Physicians, as good citizens, possessed of special training, should advise concerning the health of the community wherein they dwell. They should bear their part in enforcing the laws of the community and in sustaining the institutions that advance the interests of humanity. They should cooperate especially with the proper authorities in the administration of sanitary laws and regulations.—Principles of Medical Ethics of the American Medical Association, chapter 8, section 1, June, 1954.

SPECIAL ARTICLE

The Board of Trustees of the American Medical Association with the approval of the House of Delegates appointed a committee that has been called the Committee on Relationships Between Medicine and Allied Health Agencies. Several articles will appear under the auspices of the committee explaining the origin, organization, and work of some of the well-known health agencies. Following is one of these articles.—ED.

AIMS, PROGRAM, AND ACHIEVEMENTS OF NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

Hart E. Van Riper, M.D., New York

The National Foundation for Infantile Paralysis was organized in 1938 to "lead, direct and unify the fight against infantile paralysis." Today it is one of the largest voluntary health agencies in the world. It has always stood for cooperation between the medical profession and the public in attacking the problems of a disease that since the time of the first recognized epidemics has spread a tremendous shadow of fear across the public mind. One of the great achievements of the organization has been to help lift this cloud of anxiety from the public conscience. In place of panic we now have a rational approach toward poliomyelitis; for ignorance, we have substituted knowledge. The foundation alone cannot and does not take credit for all the changes in attitude toward poliomyelitis that have occurred in the 17 years of its existence, but it has certainly shared in tearing away the veils of mystery that not so long ago obscured the nature of the disease. The foundation's approach to the solution of the problem of poliomyelitis has three aspects: research, public and professional education, and medical care of patients with poliomyelitis. About 64% of the net funds raised annually through the January March of Dimes has been devoted to patient care. Over 20% has gone for research, professional education, poliomyelitis prevention, clinical studies, and medical care (see table). Public education is a by-product of the foundation's service programs. It is also undertaken as a part of the March of Dimes, to which, in 1954, voluntary contributions amounting to $54,841,213.86 were made.

The singleness of purpose with which the foundation has pursued its battle against poliomyelitis has not always met with universal approval; yet there have been few instances in the entire history of medicine when such rapid progress has been made toward the elimination of a specific disease as has been made since 1938 in the control of poliomyelitis. The unique partnership of the medical profession and lay leadership focused in the foundation has helped to bring this about. From its inception, the foundation has sought and used the responsible advice and counsel of the medical profession. It began and has remained medically oriented. Physicians have reciprocated by donating their services to important projects like the gamma globulin passive immunization program and the 1954 (Salk) vaccine field trials.

Medical Director, National Foundation for Infantile Paralysis.

If the programs of the foundation are accurately analyzed, they will be found to have contributed significantly to the solution of many medical problems other than those concerning poliomyelitis; for example, its research grants have helped to illuminate the whole field of virus diseases. Its fellowship and scholarship programs for such persons as physicians, nurses, physical therapists, occupational therapists, and medical social workers have helped make available to physicians and patients a pool of personnel who minister, where needed, to those suffering from all manner of disease and disability, not poliomyelitis alone. Paradoxically, as it has grown in scope each year, the aim of the foundation has been to put itself out of business. It has sought to discover and develop techniques that would bring poliomyelitis under complete control. If a safe and effective vaccine for the prevention of poliomyelitis is found, it will have achieved its fundamental aim; however, the foundation does not plan to fold its tents this year, next year, or for some years to come. There is a great deal of unfinished business to be done. The after-care of patients striken in previous epidemics must go on. In 1955, before any new cases were recorded, the foundation was carrying a caseload of 70,000 poliomyelitis patients, who still may need financial help for treatment. Research for an improved vaccine must continue. Epidemics that will occur before a program of vaccination can be put into effect must be managed.

HISTORY

The immediate forerunner of the National Foundation for Infantile Paralysis was the Georgia Warm Springs Foundation, organized in 1927 by Franklin D. Roosevelt. It was originally supported by him and a group of his friends. In 1934, the first of a series of president's birthday celebrations raised more than 1 million dollars for Warm Springs, more money than the one Georgia institution could immediately use. The drama of the event further served to uncover a large number of persons with poliomyelitis throughout the country who needed help in their own communities. It soon turned out, however, that scientific and medical knowledge on which to base effective treatment and after-care of patients was largely lacking. In 1934, a commission was appointed to survey the field of poliomyelitis research. It reported that little research on prevention or treatment was being done, that treatment facilities were few and inadequate, and that professional training in the field was sparse and meager. The survey emphasized the need for a new, broad-scale approach to the many-faceted problems posed by poliomyelitis, especially the need for both basic and clinical research. To meet these needs, the National Foundation for Infantile Paralysis was incorporated as a nonprofit membership corporation on Jan. 3, 1938, with Basil O'Connor as president, an office that he has held on a volunteer basis ever since. Mr. O'Connor had previously served as incorporator, trustee, treasurer, vice-president, and chairman of the executive committee of the Georgia Warm Springs Foundation. He became president after Mr. Roosevelt's death in 1945. The first medical advisory committee of the foundation was appointed in June, 1938. Such committees have been in constant operation since this time. Organization of local chapters throughout the United States began in 1939 with founding of the first recognized county chapter in Coshocton, Ohio. At present there are 3,100 chapters.

As the impact of poliomyelitis on the American scene increased, the foundation improvised and then adopted many procedures to meet the needs. For example, it undertook to recruit nurses for epidemic service (1940); sponsored state "preparedness meetings" to anticipate epidemic emergencies (1944); launched a vast training program for physical therapists; organized Polio Epidemic Aid Units, professional teams skilled in the management of poliomyelitis patients; and sponsored the Polio Emergency Volunteer (PEV) corps of nonprofessionals trained to assist in the bedside care of poliomyelitis patients (1945). In 1946 came the establishment of equipment depots, strategically located throughout the country, from which apparatus, such as iron lungs, rocking beds, and hot pack machines, could be promptly shipped into epidemic areas. Today there are 9 such depots. The First International Poliomyelitis Conference, sponsored by the foundation, was held in New York City (1948) and was followed by a second in Copenhagen (1951). A third meeting was held in Rome (1954). Regional respirator centers for clinical research and treatment of patients needing iron lungs were first established in 1950 and now number 13. Field trials of gamma globulin were held in 1951 and 1952. These trials showed that the use of gamma globulin in mass inoculations at the proper time and in proper dosage provided a degree of temporary (6 to 8 weeks) protection against paralytic poliomyelitis.

Funds Provided by the National Foundation for Infantile Paralysis, 1938-1955

Project	Amount	
Research	$22,600,000	
Virology and epidemiology		$18,300,000
Prevention and treatment of after-effects		4,300,000
Education	22,700,000	
Professional education		19,600,000
Public education		3,100,000
Prevention	22,500,000	
Including gamma globulin and vaccine		
Clinical Studies and Medical Care	9,500,000	
Including support of respirator centers		
Patient Care	203,600,000	

BETTER CARE FOR POLIOMYELITIS PATIENTS

There have been great improvements in the care of poliomyelitis patients in the 17 years during which the foundation has been focusing attention on this disease. The foundation has provided physicians with more facilities and knowledge so that poliomyelitis patients could receive better care than was otherwise available. Most physicians today recognize poliomyelitis in its early stages, and proved and effective methods of treatment have come into use almost everywhere. Physical therapy is promptly instituted, and muscle reeducation is begun early. Patients are observed more carefully and over a longer span of time. The possibilities of reconstructive surgery and complete rehabilitation are more seriously considered. The physician treating a poliomyelitis patient can now arrange for that patient to be admitted to any one of 1,500 hospitals, many of which have special equipment provided by local foundation chapters. More, if needed, is speedily available from the foundation's

equipment depots. In the mid-1930's, there were scarcely 300 hospitals that would admit poliomyelitis patients and most were poorly equipped. The trend today, however, is toward home treatment whenever feasible, especially for suspect, abortive, and nonparalytic cases. The foundation has also made a special contribution toward improved patient care in its support of training programs for physical therapists. One-third of the 6,000 qualified physical therapists now practicing in the United States received training through foundation funds.

TEAMWORK IN MEDICAL CARE

In its approach to better patient care, the foundation has constantly stressed the need for teamwork between the physician and the associate personnel assisting the patient, nurses, physical therapists, occupational therapists, medical social workers, and psychologists. This approach has been the guide of the foundation in its support of education in the associate professions. The teamwork approach has been conspicuous in the operation of the regional respirator centers. The coordinated approach of the medical team has enabled many patients to be weaned from iron lungs who, earlier, might never have left them. The organization of the medical department, the largest service department of the foundation, also suggests the scope of services that can be made available to the poliomyelitis patient. It includes divisions of research, professional education, public education, and medical services. The medical services division includes hospital, nursing, psychological, and medical social services, as well as a technical equipment division. The fundamental aim of the medical services division is to provide technical advice and assistance that will help chapters obtain a high quality of care for patients who need it. In addition, it is directly concerned with maintaining standards of care and professional relationships.

EDUCATION AND RESEARCH

The division of professional education has several functions, all related to the recruitment and education of qualified professional workers in the field. It was established in response to the need for adequate numbers of qualified workers to carry out the basic research and treatment goals of the foundation. It was discovered early that the foundation would have to help train the specialized personnel needed in the fight against poliomyelitis; for example, in 1938 there were not even half a dozen competent virologists in the whole country studying problems related to poliomyelitis. Since then the foundation has financed training for more than 50 virologists. It is a significant fact that Dr. Jonas E. Salk, the University of Pittsburgh virologist who developed the vaccine now being evaluated, began research work at the University of Michigan in 1942 under a fellowship paid for by the National Foundation for Infantile Paralysis. With the help of committees of experts, including many physicians, the division of professional education arranges and administers fellowships and scholarships in many fields relating to poliomyelitis; however, no recipient of a fellowship or scholarship is pledged to work exclusively in the poliomyelitis field. Grants for the improvement of teaching programs are also made. The division of professional education further issues and subsidizes publications useful in poliomyelitis education (for example, the pamphlet "Control Measures in Poliomyelitis" and the book "Viral and Rickettsial Infections in Man"); provides and distributes scientific exhibits, films, and other visual aids; and arranges for short-term courses for professionals in the treatment of poliomyelitis. Fellowships of special interest to physicians are in the clinical fields of orthopedic surgery, physical medicine and rehabilitation, public health and preventive medicine, pediatrics, and psychiatry and for research in medicine and related biological sciences.

The research division supervises and administers grants for research in virology and epidemiology and in the care and treatment of after-effects of poliomyelitis. All grants are made to institutions, such as universities and hospitals, on application by a responsible principal investigator and after recommendation by the appropriate scientific advisory committee of the foundation. The services of the distinguished scientists who serve on these volunteer advisory committees cannot be overestimated. They funnel the best professional thought in America into the research program of the foundation. Many scientific advisors have served faithfully for many years, including two past-presidents of the American Medical Association, the late Drs. James E. Paullin and Irvin Abell, who gave most generously of themselves in furthering the programs of the foundation.

FIELD RELATIONSHIPS WITH ORGANIZED MEDICINE

The medical services of the foundation are carried into the field by a number of regional medical consultants. Physicians trained in the problems of poliomyelitis are thus available to assist physicians and chapters throughout the country in evaluating the quantity, quality, adequacy, and cost of medical care for local patients. They are available to local medical organizations and hospitals for consultation on poliomyelitis problems. The chapter bylaws of the foundation provide that every chapter have a medical advisory committee. This committee consists of local physicians who advise the chapter on medical and hospital problems. They are a direct channel of communication with the local medical profession. Since 1951, these chapters have asked county medical societies for slates of recommendations for appointment to the committees. Twice as many names are presented as there are positions to be filled so that selections may be made. This plan was recommended to county medical societies by the Board of Trustees of the American Medical Association.

COOPERATION BETWEEN PHYSICIANS AND THE FOUNDATION

Many opportunities for cooperation of mutual benefit exist between practicing physicians and the foundation. Thousands of physicians are already providing direct service to the foundation by serving as members of medical advisory committees of local chapters, while others have contributed their services by giving inoculations in the 1954 poliomyelitis vaccine field trials. Without their cooperation, the field trials of vaccine, in which about 650,000 children were inoculated, never could have been undertaken by the foundation and state and local health

officers. The physician who is aware of the services made available through the foundation may find many benefits for his patients. Sometimes a patient who has recovered from poliomyelitis needs an operation but cannot pay for it. The foundation chapter may provide funds for this purpose if the operation is considered by the physician to be of value to the patient. The physician may refer a patient to a local chapter for help in obtaining physical therapy or other services. The foundation also supplies literature helpful to parents and patients, which physicians may make available to patients in their waiting rooms, for example, the annual summer message on poliomyelitis precautions, or, for parents of poliomyelitis patients, the leaflet "When Your Child Has Infantile Paralysis." Copies of this literature for waiting-room distribution may be obtained by physicians from their local chapters.

COMMENT

This brief account of foundation medical services and relationships is not the whole story. Many other departments operate in support and in cooperation with the medical department. The division of public education and the public relations department cooperate to keep the public informed of facts about poliomyelitis and to ease alarm in epidemic circumstances. There is also a year-round program of poliomyelitis education for the general public and a special program for schools, colleges, and adult education groups. The chapter and fund-raising departments of the foundation are the keystones of its organization. These departments are remarkable in their ability to mobilize constructively the services of thousands upon thousands of volunteer workers dedicated to the fight against poliomyelitis. Volunteers, lay and professional, are the lifeblood of a voluntary health organization. The foundation has developed techniques for linking public enthusiasm and professional skill in reaching together toward the solution of a specific health problem.

SUMMARY AND CONCLUSIONS

Since it was founded in 1938 to "lead, direct and unify the fight against poliomyelitis," the National Foundation for Infantile Paralysis has served the medical profession by constantly augmenting the knowledge and facilities available for better care and treatment of poliomyelitis patients. Throughout, it has enjoyed a high degree of cooperation with organized medicine and with individual physicians. To help physicians achieve the goal of better care for poliomyelitis patients, from the acute stage of the disease through rehabilitation, the foundation has contributed effort and large sums of money to the support of three major types of program: (1) research in virology, epidemiology, and prevention and treatment of after-effects; (2) professional education for research scientists and for physicians, as well as for the associate professional workers who make up the poliomyelitis treatment "team"; and (3) patient care, paid for in whole or in part in local communities by 3,100 local chapters. Significantly, its support of recruitment and professional training programs has swelled the pool of professional personnel available for the treatment of many kinds of disabling diseases. Research has brought us the hope that we may soon be able to prevent poliomyelitis through a program of active immunization. When poliomyelitis prevention is an accomplished fact, the record of the National Foundation for Infantile Paralysis will stand uniquely, as that of a voluntary health organization that reached its specific goal.

120 Broadway (5).

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Cyanocobalamin (See New and Nonofficial Remedies 1954, p. 550).

Bio-Intrasol Laboratories, Inc., Brooklyn, N. Y.

Solution Crystalline Vitamin B_{12} with Benzyl Alcohol 1.5%: 10 and 30 cc. vials. A solution containing either 30 or 50 mcg. of cyanocobalamin in each cubic centimeter.

J. B. Roerig & Company, Chicago.

Solution Vibalt with Benzyl Alcohol 1.5%: 10 cc. vials. A solution containing 50 mcg. of cyanocobalamin in each cubic centimeter. U. S. trademark 547,447.

Dia-Mer-Sulfonamides (See New and Nonofficial Remedies 1954, p. 114).

The Bowman Bros. Drug Company, Canton, Ohio.

Tablets Merdisul: 0.5 gm. Each tablet contains 0.25 gm. each of sulfadiazine and sulfamerazine.

Hexett Tablets Merdisul: 0.13 gm. Each tablet contains 64.8 mg. each of sulfadiazine and sulfamerazine.

Dienestrol (See New and Nonofficial Remedies 1954, p. 414).

Lloyd & Dabney Company, Inc., Cincinnati.

Tablets Dienestrol: 0.1, 0.25, 0.5, and 5 mg.

Hydrocortisone (See New and Nonofficial Remedies 1954, p. 395).

The Upjohn Company, Kalamazoo, Mich.

Tablets Cortef: 5 and 20 mg. U. S. trademark 583,191.

Meperidine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1954, p. 19).

Winthrop-Stearns, Inc., New York.

Solution Demerol Hydrochloride: 1 cc. ampuls. A solution containing 50 mg. of meperidine hydrochloride in each cubic centimeter. U. S. patent 2,167,351. U. S. trademark 381,130.

Methyltestosterone-U.S.P. (See New and Nonofficial Remedies 1954, p. 444).

S. J. Tutag & Company, Detroit.

Tablets Methyltestosterone: 10 mg.

Protein Hydrolysates (See New and Nonofficial Remedies 1954, p. 477).

Mead Johnson & Company, Evansville, Ind.

Solution Amigen 5% with Dextrose 10%: 1 liter bottles. Each 100 cc. contains 5 gm. of protein hydrolysate and 10 gm. of dextrose.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following products containing non-nutritive, artificial sweeteners intended for use in sodium-restricted and carbohydrate-restricted diets have been accepted by the Council. Data regarding composition represent the best available information, which is based on submitted reports of analyses. The Council has requested continuing analytical studies, especially of the sodium content of products intended for use in sodium-restricted diets, because of the natural variations in the composition of processed foods. Artificial sweeteners have been added for those who desire a sweet taste but who must restrict their use of ordinary sugar.

JAMES R. WILSON, M.D., *Secretary.*

Francis H. Leggett & Co., New York.

Premier Brand Artificially Sweetened Dietetic Unpeeled Halves Apricots.

Ingredients.—Apricots packed in water with the addition of cyclamate (Sucaryl) calcium.

Analysis (submitted by distributor).—Carbohydrate (total carbohydrate minus crude fiber) 9.0%, fat 0.2%, protein (N × 6.25) 0.5%, ash (minerals) 0.7%, and cyclamate calcium 0.35%.

Sodium.—0.4 mg. per 100 gm.; 0.5 mg. per 4 oz. serving.

Calories.—0.4 per gram; 11.3 per ounce.

Use.—In calory-restricted, carbohydrate-restricted, and sodium-restricted diets.

Premier Brand Artificially Sweetened Dietetic Royal Anne Light Sweet Cherries.

Ingredients.—Royal Anne, light, sweet cherries packed in water with the addition of cyclamate (Sucaryl) calcium.

Analysis (submitted by distributor).—Carbohydrate (total carbohydrate minus crude fiber) 14.0%, fat 0.2%, protein (N × 6.25) 0.6%, ash (minerals) 0.4%, and cyclamate calcium 0.35%.

Sodium.—0.2 mg. per 100 gm.; 0.2 mg. per 4 oz. serving.

Calories.—0.62 per gram; 17.6 per ounce.

Use.—In calory-restricted, carbohydrate-restricted, and sodium-restricted diets.

Premier Brand Artificially Sweetened Dietetic Fruit Cocktail.

Ingredients.—Peaches, pears, grapes, pineapple, and maraschino type cherries packed in water with the addition of cyclamate (Sucaryl) calcium.

Analysis (submitted by distributor).—Carbohydrate (total carbohydrate minus crude fiber) 10.0%, fat 0.2%, protein (N × 6.25) 0.4%, ash (minerals) 0.2%, cyclate calcium 0.35%.

Sodium.—2.1 mg. per 100 gm.; 2.4 mg. per 4 oz. serving.

Calories.—0.45 per gram; 12.8 per ounce.

Use.—In calory-restricted, carbohydrate-restricted, and sodium-restricted diets.

Premier Brand Artificially Sweetened Dietetic Fruits for Salad.

Ingredients.—Apricots, peaches, pears, maraschino type cherries, and pineapple packed in water with the addition of cyclamate (Sucaryl) calcium.

Analysis (submitted by distributor).—Carbohydrate (total carbohydrate minus crude fiber) 10.0%, fat 0.2%, protein (N × 6.25) 0.8%, ash (minerals) 0.2%, cyclamate calcium 0.35%.

Sodium.—2.3 mg. per 100 gm.; 2.7 mg. per 4 oz. serving.

Calories.—0.45 per gram; 12.8 per ounce.

Use.—In calory-restricted, carbohydrate-restricted, and sodium-restricted diets.

Premier Brand Artificially Sweetened Dietetic Sliced Yellow Cling Peaches.

Ingredients.—Peaches packed in water with the addition of cyclamate (Sucaryl) calcium.

Analysis (submitted by distributor).—Carbohydrate (total carbohydrate minus crude fiber) 9.0%, fat 0.2%, protein (N × 6.25) 0.5%, ash (minerals) 0.7%, cyclamate calcium 0.35%.

Sodium.—3.1 mg. per 100 gm.; 3.6 mg. per 4 oz. serving.

Calories.—0.4 per gram; 11.3 per ounce.

Use.—In calory-restricted, carbohydrate-restricted, and sodium-restricted diets.

Premier Brand Artificially Sweetened Dietetic Peeled Halves Bartlett Pears.

Ingredients.—Bartlett pears packed in water with the addition of cyclamate (Sucaryl) calcium.

Analysis (submitted by distributor).—Carbohydrate (total carbohydrate minus crude fiber) 9.0%, fat 0.3%, protein (N × 6.25) 0.2%, ash (minerals) 0.2%, cyclamate calcium 0.35%.

Sodium.—6.0 mg. per 100 gm.; 7.5 mg. per 4 oz. serving.

Calories.—0.4 per gram; 11.3 per ounce.

Use.—In calory-restricted, carbohydrate-restricted, and sodium-restricted diets.

Flotill Products, Inc., Stockton, Calif.

Tillie Lewis Tasti-Diet Brand Special Dietary Artificially Sweetened Unpitted Dark Sweet Cherries.

Ingredients.—Unpitted, dark, sweet cherries packed in water containing pectin, saccharin, and cyclamate (Sucaryl) calcium without added sugar or salt.

Analysis (submitted by manufacturer).—Total solids 15.0%, moisture 85.0%, ash (minerals) 0.44%, fat (ether extract) 0.1%, protein (N × 6.25) 0.6%, crude fiber 0.2%, pectin 0.3%, total carbohydrates (by difference) 13.4%, reducing sugars 8.5%, total sugars 8.7%, available carbohydrates (total carbohydrates minus crude fiber and pectin) 12.9%, acidity (as citric acid) 0.5%, soluble saccharin 0.02%, and cyclamate calcium 0.006%.

Sodium.—11 mg. per 100 gm.

Calories (available).—0.56 per gram; 16 per ounce.

Use.—In carbohydrate-restricted, calory-restricted, and sodium-restricted diets.

Tillie Lewis Tasti-Diet Brand Special Dietary Artificially Sweetened Unpitted Light Sweet Cherries.

Ingredients.—Unpitted, light, sweet cherries packed in water containing pectin, saccharin, and cyclamate (Sucaryl) calcium without added sugar or salt.

Analysis (submitted by manufacturer).—Total solids 13.5%, moisture 86.5%, ash (minerals) 0.35%, fat (ether extract) 0.1%, protein (N × 6.25) 0.8%, crude fiber 0.2%, pectin 0.6%, total carbohydrates (by difference) 11.8%, reducing sugars 8.8%, total sugars 9.3%, available carbohydrates (total carbohydrates minus crude fiber and pectin) 11.0%, acidity (as citric acid) 0.5%, soluble saccharin 0.02%, and cyclamate calcium 0.006%.

Sodium.—6.0 mg. per 100 gm.

Calories (available).—0.5 per gram; 14 per ounce.

Use.—In carbohydrate-restricted, calory-restricted, and sodium-restricted diets.

Tillie Lewis Tasti-Diet Brand Special Dietary Artificially Sweetened Fruit Cocktail.

Ingredients.—Diced peaches, diced pears, Thompson seedless grapes, diced pineapple, and halved cherries (artificially colored red and artificially flavored with oil of bitter almond), packed in water containing pectin, saccharin, and cyclamate (Sucaryl) calcium without added sugar or salt.

Analysis (submitted by manufacturer).—Total solids 9.0%, water 91.0%, ash (minerals) 0.19%, fat (ether extract) 0.2%, protein (N × 6.25) 0.3%, crude fiber 0.4%, pectin 0.4%, total carbohydrates (by difference) 8.0%, reducing sugars 5.9%, total sugars 6.5%, available carbohydrates (total carbohydrates minus crude fiber and pectin) 7.2%, acidity (as citric acid) 0.3%, soluble saccharin 0.02%, and cyclamate calcium 0.006%.

Sodium.—10 mg. per 100 gm.

Calories (available).—0.33 per gram; 9 per ounce.

Use.—In carbohydrate-restricted, calory-restricted, and sodium-restricted diets.

Tillie Lewis Tasti-Diet Brand Special Dietary Artificially Sweetened Prune Plums.

Ingredients.—Prune plums packed in water containing pectin, saccharin, and cyclamate (Sucaryl) calcium without added sugar or salt.

Analysis (submitted by manufacturer).—Total solids 15.0%, moisture 85.0%, ash (minerals) 0.32%, fat (ether extract) 2.0%, protein (N × 6.25) 0.5%, crude fiber 0.3%, pectin 0.4%, total carbohydrates (by difference) 13.3%, reducing sugars 7.2%, total sugars 7.4%, available carbohydrates (total carbohydrates minus crude fiber and pectin) 12.6%, acidity (as citric acid) 0.7%, soluble saccharin 0.02%, and cyclamate calcium 0.006%.

Sodium.—11 mg. per 100 gm.

Calories.—0.56 per gram; 16 per ounce.

Use.—In carbohydrate-restricted, calory-restricted, and sodium-restricted diets.

The following products intended for use in sodium-restricted and calory-restricted diets have been accepted by the Council. Data regarding composition represent the best available information, which is based on submitted reports of analyses. The Council has requested continuing analytical studies, especially of the sodium content of products intended for use in sodium-restricted diets, because of the natural variations in the composition of processed foods.

JAMES R. WILSON, M.D., *Secretary.*

Flotill Products, Inc., Stockton, Calif.

Tillie Lewis Tasti-Diet Brand Dietetic All Green Cut Spears Asparagus.

Ingredients.—Fancy no. 1 grade green asparagus spears packed in water without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 5.7%, moisture 94.3%, ash (minerals) 0.5%, fat (ether extract) 0.3%, protein (N × 6.25) 1.9%, crude fiber 0.5%, carbohydrates, total (by difference) 3.0%, and carbohydrates, available (by difference) 2.5%.

Sodium.—9.0 mg. per 100 gm.

Calories (available).—0.2 per gram; 5.7 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

Tillie Lewis Tasti-Diet Brand Dietetic Cut Stringless Green Beans.

Ingredients.—Fancy no. 1 grade cut stringless green beans packed in water without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 5.8%, moisture 94.2%, ash (minerals) 0.5%, fat (ether extract) 0.1%, protein (N × 6.25) 1.0%, crude fiber 0.6%, carbohydrates, total (by difference) 4.2%, and carbohydrates, available (by difference) 3.6%.

Sodium.—2.0 mg. per 100 gm.

Calories (available).—0.19 per gram; 5 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

Tillie Lewis Tasti-Diet Brand Dietetic Diced Beets.

Ingredients.—Fancy no. 1 grade beets packed in water without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 10.0%, moisture 90.0%, ash (minerals) 0.5%, fat (ether extract) 0.1%, protein (N × 6.25) 0.9%, crude fiber 0.5%, carbohydrates, total (by difference) 8.5%, and carbohydrates, available (by difference) 8.0%.

Sodium.—39 mg. per 100 gm.

Calories (available).—0.37 per gram; 11 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

Tillie Lewis Tasti-Diet Brand Dietetic Diced Carrots.

Ingredients.—Fancy no. 1 grade carrots packed in water without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 7.9%, moisture 92.1%, ash (minerals) 0.6%, fat (ether extract) 0.4%, protein (N × 6.25) 0.5%, crude fiber 0.8%, carbohydrates, total (by difference) 6.4%, and carbohydrates, available (by difference) 5.6%.

Sodium.—30 mg. per 100 gm.

Calories (available).—0.28 per gram; 10 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

Tillie Lewis Tasti-Diet Brand Dietetic Whole Kernel Golden Sweet Corn.

Ingredients.—Fancy no. 1 golden sweet corn packed in water without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 15.3%, moisture 84.7%, ash (minerals) 0.4%, fat (ether extract) 0.7%, protein (N × 6.25) 1.8%, crude fiber 0.8%, carbohydrates, total (by difference) 12.4%, and carbohydrates, available (by difference) 11.6%.

Sodium.—3.0 mg. per 100 gm.

Calories (available).—0.6 per gram; 17 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

Tillie Lewis Tasti-Diet Brand Dietetic Sweet Peas.

Ingredients.—Fancy no. 1 grade sweet peas packed in water without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 15.8%, moisture 84.2%, ash (minerals) 0.6%, fat (ether extract) 0.4%, protein (N × 6.25) 3.3%, crude fiber 1.4%, carbohydrates, total (by difference) 11.5%, and carbohydrates, available (by difference) 10.1%.

Sodium.—2.0 mg. per 100 gm.

Calories (available).—0.57 per gram; 16 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

Tillie Lewis Tasti-Diet Brand Dietetic Whole Peeled Tomatoes.

Ingredients.—Fancy no. 1 grade cored and peeled whole tomatoes packed with added tomato juice and a small amount of calcium chloride, without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 6.3%, moisture 93.7%, ash (minerals) 0.7%, fat (ether extract) 0.3%, protein (N × 6.25) 1.2%, crude fiber 0.5%, carbohydrates, total (by difference) 4.1%, and carbohydrates, available (by difference) 3.6%.

Sodium.—10 mg. per 100 gm.

Calories (available).—0.22 per gram; 6 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

Tillie Lewis Tasti-Diet Brand Dietetic Tomato Paste.

Ingredients.—Fancy no. 1 grade tomatoes, chopped, concentrated, and screened to remove seeds and skins, without any added sugar, salt, or other material.

Analysis (submitted by manufacturer).—Total solids 26.0%, moisture (74.0%, ash (minerals) 3.0%, fat (ether extract) 1.3%, protein (N × 6.25) 4.3%, crude fiber 1.0%, carbohydrates, total (by difference) 17.4%, and carbohydrates, available (by difference) 16.4%.

Sodium.—45 mg. per 100 gm.

Calories (available).—0.95 per gram; 27 per ounce.

Use.—In sodium-restricted, carbohydrate-restricted, and calory-restricted diets.

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EDUCATION IN ALLERGY

GUEST EDITORIAL

Samuel M. Feinberg, M.D., Chicago

Allergy appears to be a neglected stepchild in the scheme of medical education. Does the subject of allergy deserve a substantial role in undergraduate and graduate instruction? Is the incidence of allergic disease of sufficient frequency to warrant it? Do allergic ailments constitute a substantial threat to the well-being, normal life, and economy of many persons? Does the successful care of allergies entail special skills and knowledge requiring reasonable efforts in time and energy to learn them?

The United States Public Health Service estimates that there are about 4 million persons with asthma and hay fever in this country. From various other sources and figures it can be inferred that there are probably no less than 7 million hay fever sufferers, 2 million with asthma, and several millions with other types of allergies, such as perennial rhinitis, atopic dermatitis, drug reactions, urticaria, contact dermatitis, and gastrointestinal allergy. In recent years the concept of allergy has become increasingly important in many infections, such as pneumonia, rheumatic fever, and scarlet fever, as well as in certain hematological entities and such conditions as nephritis and periarteritis nodosa and other collagen diseases. Of the 2 million persons with asthma many have chronic disease, and several hundred thousand of these become disabled. Asthma is not a disease of the aged. In 1949 there were 36,541 veterans of World War II on compensation rolls for asthma. The majority of cases of asthma begin in childhood, and many of those afflicted become crippled if their care has been inadequate.

The last several decades have witnessed substantial progress in our knowledge enabling us to improve the outlook of this horde of suffering humanity. Nowadays it is possible to determine a specific cause for almost every case of seasonal hay fever and for the majority of cases of asthma and nonseasonal rhinitis. Diagnostic tests have become standardized and their interpretation better understood. Desensitization has been established as a useful procedure, particularly in patients with chronic asthma and the seasonal and perennial rhinitis. The antihistamines, cortisone, and corticotropin have contributed materially to symptomatic relief. It is true that there are many imperfections in our understanding of allergy and in the management of it, but serious research in a number of institutions is seeking to bridge the gaps in our knowledge of the immunology, pathology, etiology, and treatment.

Our larger immediate problem is not discovery of new facts but rather the education of the physician in the facts already known about allergy. The average doctor who may be adept at treating a fracture of the femur, a pneumonia, or a leukemia, at delivering a breech, or in the care of all of them, is likely to be a novice when it comes to handling a case of chronic asthma or knowing the proper steps to be taken preparatory to penicillin or serum administration, when to use patch tests, when to administer cortisone, and how to interpret the skin test. He is too often apt to subscribe to the old superstition of waiting for the child to outgrow his asthma and to find, all too frequently, that not only does the asthma remain but a chest cripple has resulted.

All allergy problems cannot be taken care of by allergy specialists. There are less than 1,500 physicians in the United States who specialize in allergy, which means about 10,000 patients to each specialist. Even though half of these allergies may not be severe enough to require medical care, 5,000 patients to each specialist is still an impossible load. The nonspecialist must be capable of taking care of the majority of patients with allergic problems, including the less involved persistent allergies, the drug reactions, and the acute manifestations. There is no type of practice in which a knowledge of the principles of allergy is not needed. For a pediatrician, internist, or general practitioner to get along without applying a knowledge of allergy is no less ludicrous than for the same physician to try to dispense with the stethoscope, x-ray, blood cell count, sedimentation rate, and bacterial cultures. A large percentage of the rhinologist's patients have allergic symptoms as their complaint. Even the surgeon, obstetrician, and neurologist encounter allergic problems.

What has been done to provide for education in allergy of the medical profession as a whole? Obviously, the vast majority of physicians who graduated 25 years ago or earlier had no instruction in allergy while in the medical school. The recent graduate is more fortunate, but his education is still inadequate. Most medical schools give instruction in allergy varying from 4 to 11 hours during the entire medical curriculum. Some provide for more, while others have no instruction whatever in allergy. Intensive postgraduate courses are given from time to time, usually for periods varying from two to five days, by such organizations as the American College of Physicians, the American Academy of Allergy, and the American College of Allergists. The total attendance at these and similar courses does not exceed 300 or 400 annually. About 20 institutions now provide a total of about 30 approved residencies and fellowships for a year or more of training in allergy. These are planned for those candidates who are certified or qualified to be certified in medicine or pediatrics. Certification in allergy requires prior certification by the American Board of Internal Medicine or the American Board of Pediatrics. In the last two or three years the number of candidates who have been certified in allergy has averaged less than 10 annually. Obviously an insufficient supply of well-trained allergy spe-

cialists is being produced. This is due in large part to the disinterest in allergy when the graduate begins to look toward the selection of a specialty. For the most part this is the result of a lack of perspective engendered by inadequate indoctrination of students and of interns in the importance and scope of allergy. In part it is also due to the lack of foresight of medical schools and hospitals in encouraging and providing facilities for graduate and residency training in allergy for the purpose of specialization. The average medical student or intern fails to realize that to the serious young physician the field of allergy offers boundless opportunities, in the variety of clinical syndromes, in the ability to relieve chronic disease, in the abundance of patients, and in the limitless opportunities for clinical and laboratory research.

Improvement in education in allergy is one of the primary goals of the newly formed American Foundation for Allergic Diseases (525 Lexington Ave., New York, N. Y.). Other aims of this foundation are education of the public, improvement in clinical facilities, and promotion of research. The foundation is sponsored by the two national allergy societies, the American Academy of Allergy and the American College of Allergists. The scientific and educational council of this organization will survey the status and needs of research and education in allergy and will recommend means of improving them. Among the men who have indicated their willingness and enthusiasm to serve on this council are Dr. Robert A. Cooke, director, Institute of Allergy, Roosevelt Hospital, New York; Dr. Elvin Kabat, associate professor of immunology, Columbia University, New York; Dr. Richard A. Kern, head, department of medicine, Temple University Medical School, Philadelphia; Dr. Frank J. Dixon, head, department of pathology, University of Pittsburgh School of Medicine; and Dr. Cyrus C. Sturgis, head, department of medicine, University of Michigan Medical School, Ann Arbor. The high caliber of these men and their reputations in medical education indicate the need for this project and are an encouraging sign of the likelihood of achieving its goals.

PLANS FOR ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The preliminary program of the Congress on Medical Education and Licensure scheduled for February 5-8, 1955, at the Palmer House in Chicago appears on page 149 of this issue of THE JOURNAL. Matters of current importance in the fields of undergraduate, graduate, and postgraduate medical education and medical licensure are highlighted on the program.

On February 5, there will be a conference on the potential use of television in postgraduate medical education. This is the first time that the Council on Medical Education and Hospitals of the American Medical Association has sponsored a special program directed toward the field of postgraduate medical education as a part of the annual congress. It has been initiated this year as an experiment directed toward dealing comprehensively with a single major educational activity in the field of postgraduate medical education. The educational potential as well as the problems involved in using television in this field was selected as the conference title after a careful inquiry among postgraduate medical educators as to the area considered of greatest immediate concern to them.

The regular session of the congress devoted to the program of the Council on Medical Education and Hospitals on February 7 will be centered during the morning session on legal medicine in undergraduate medical education and in the afternoon on the question "Does the Internship Have a Place in Modern Medical Education?" Both these sessions will be conducted as symposiums, and it is hoped that they will provoke constructive discussions among those attending the congress.

The Federation of State Medical Boards of the United States has also prepared an important program for its sessions on February 6 and 8. Their program will include further discussion of the development of a uniform Medical Practice Act, an analysis of the proposals of the Cooperating Committee on Foreign Medical Graduates, and other important topics. The Advisory Board for Medical Specialties will meet on February 6 to discuss matters of current concern in their area. The over-all program is filled with material of current interest and importance to all those concerned with medical education and licensure. It is suggested that those who plan to attend the Annual Congress on Medical Education and Licensure make their reservations at the Palmer House now in order to assure their accommodations.

JUVENILE DELINQUENCY

Although delinquency is a real problem and may be on the increase, there is a possibility that the greater publicity it is given far outweighs any exacerbation of delinquency itself. Certainly juvenile delinquency has been a problem since earliest recorded history. In any discussion of juvenile delinquency it is necessary to differentiate between the healthy child whose poorly channeled overactivity gets him into trouble, the child undergoing difficulties in his emotional relationship with his parents, and the child with a severe and progressive emotional illness.[1] As pointed out by Curran in this issue (page 108) most juvenile delinquents are not psychotic, mentally defective, psychoneurotic, or suffering from a psychopathic personality but are rather potentially normal persons whose background is lacking in stabilizing influences both culturally and economically.

The delinquent youth has been described as a rebel without a cause. He is essentially an unhappy person who is looking for a face-saving way to abandon his false bravado. His hostility to society as a whole is conditioned by the attitude of others toward him. He does not conform to the standards of a society from which he feels he has been excluded. Beck[2] states that he is shunned because it is so much easier to do things for those who conform to our social standards. This creates a vicious circle, for the delinquent deliberately provokes and fully expects rejection and punishment. When he is punished his hostility is reinforced. Aggression begets aggression and the hostility of society toward the delinquent prevents a realistic examination of the problem.

1. Tough Tempora, Worse Mores, editorial, Psychiatric Quart. **28**: 496-510, 1954.

2. Beck, B. M.: Juvenile Delinquency—Why and How, J. Social Hyg. **40**: 210-221, 1954.

There is no single cause of juvenile delinquency, but in general, as Bradley states in another article in this issue (page 101), delinquent behavior occurs when a child is repeatedly confronted with situations that he cannot meet with satisfaction through acceptable action. There is always the danger that the public, goaded by one-sided enthusiasts, will seek an easy but superficial and hence fruitless answer to the problem in the banning of certain types of television programs or "comic" books. Harmful as these may be, they are far more likely to produce in the average child nightmares and heightened anxiety than they are to lead to crime, and the problems of where to draw the line in censorship are almost insurmountable. Although in many instances parents are partially to blame for the delinquency of their children, this is too easy an indictment to make, and in almost every case other factors in the child's environment will have been found to have played a contributing role. These are factors over which the parents of the delinquent have no direct control.[3]

The recreational centers provided for youth, on which high hopes for the elimination of delinquency have been placed, have failed because the true delinquent would not be "caught dead" inside their doors. Placing these youths in corrective institutions of any kind is almost sure to fail, because an institutional environment is not conducive to the development of a mature personality. If we want the delinquent to adjust to society we must recognize the importance of providing the sort of society to which a person may reasonably be expected to adjust. Preventive measures should include more child guidance services in the schools, better mental hygiene instruction for parents, better training of teachers, and remedial measures that make use of the type of teamwork described by Curran (psychiatrist, clinical psychologist, psychiatric social worker, and pediatrician).[1] An abrupt swing from parental and classroom tyranny, all too common in the past, to extreme permissiveness is to be avoided. Discipline is a necessary part of mental hygiene, but in it the child must recognize a sincere desire not merely to punish him but to protect him from hurting himself and others. How a child reacts to punishment depends not on whether the parents use force but on how they really feel toward the child. In this matter a child is not fooled by empty words, overindulgence, or any other device used to disguise the parents' true feelings.

In environments found to be most conducive to delinquency the proportion of children who become severe delinquents is small. Some consideration should be given to the factors that prevent delinquency under such circumstances. The charge that American home life is vanishing is unduly pessimistic. It is undergoing change, and the rapidity of the change has been unsettling, but there is every prospect that a more democratic, more companionable, and less authoritarian home life than was ever present in the past will evolve. It will be characterized by more cooperation and less compulsion. It is to be hoped that such juvenile delinquency as persists in spite of it will be of the transient type and reduced to an insignificant level.

3. Stott, D. H.: Saving Children from Delinquency, New York, Philosophical Library Inc., 1953.

MALE HOSPITAL PATIENTS OUTNUMBER FEMALE PATIENTS

Elsewhere in this issue (page 173) the Bureau of Medical Economic Research of the American Medical Association presents some rather startling facts on the age and sex distribution of patients in registered hospitals in the United States late in 1953. Although 17% of all persons admitted to hospitals during the year were pregnant women, on the day the hospital reported, only 46.8% of the patients in the survey were females. Even at the childbearing ages of life 15 to 44 there was an excess of 13,233 males in the 6,539 registered hospitals that were covered in the survey. The age distribution of patients reported in this first comprehensive survey of hospital patients is significant; 7.5% were under 15 years of age, 40.9% were in the age group 15-44, 31.2% in the age group 45-64, and 20.4% in the age group 65 and over. Males exceeded females in each of the four age groups, although the margin in the age group 65 and over was very small. No data on diagnosis and treatment were requested, but the finding that 28% of all patients under 15 years of age were in nervous and mental hospitals was surprising. This percentage does not, of course, indicate the relative importance of mental illness among children.

The excess of males was so unexpected that an explanation was sought in several classifications of hospitals. The traditional classification by type of service gave no clue to the reason for the excess of male patients, as there was an excess of males in all types of hospitals except maternity. In nongovernmental general hospitals, however, 59.5% of the patients were females. On the other hand, the classification of hospitals by type of control did throw considerable light on the higher hospital incidence of males. In the nongovernmental hospitals there was an excess of 64,600 females and in the state and local governmental hospitals an excess of 8,100 males, but in the federal hospitals, where the average length of stay of patients was longest, there was an excess of 134,200 males. In fact, the excess of males (adults) in the hospitals of the Veterans Administration was 98,600, almost 21,000 greater than the entire excess of males, 77,720. The excess of 30,000 males in military hospitals, is of course, not surprising. But the easy access to veterans' hospitals for the large proportion of the patients who had non-service-connected disabilities prompted the Bureau to raise, but not answer, the question: "Would none, some, or all of these patients (with non-service-connected cases) have been hospitalized in nonfederal hospitals if they had not been in veterans' hospitals?" If this survey has demonstrated that males rather than females are the weaker sex, part of the explanation must be found in federal hospital practices. Another speculation is that the factor of childbearing is more than offset in the sex ratio of hospital patients by male veterans. Slightly more than one-half (50.3%) of the United States population are females; and they do live longer. Accidents and occupational hazards may play a role, but they hardly explain the excess of 11,400 boys among patients under 15 years of age. This survey has established that males are the more hospitalized sex.

ORGANIZATION SECTION

FIFTY-FIRST ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Palmer House, Chicago, Feb. 5-8, 1954

All meetings are open to physicians and others interested in medical education and licensure.

SCHEDULE OF MEETINGS

SATURDAY, FEB. 5, 9 A. M.–5 P. M.
GRAND BALL ROOM

Council on Medical Education and Hospitals, American Medical Association

SUNDAY, FEB. 6, 9 A. M.–12:15 P. M.
RED LACQUER ROOM

Advisory Board for Medical Specialties

Open Meeting
2 P. M.–5 P. M., RED LACQUER ROOM

Federation of State Medical Boards of the United States

Reports of Officers
Annual Congress on Medical Education and Licensure
8 P. M.–10 P. M., ROOM 14

Federation of State Medical Boards of the United States

Annual Congress on Medical Education and Licensure
MONDAY, FEB. 7, 9 A. M.–5 P. M.
RED LACQUER ROOM

Council on Medical Education and Hospitals, American Medical Association

5:30 P. M.–7 P. M., ROOM 14

Reception for Registrants of the Congress by the American Medical Association
7 P. M., CRYSTAL ROOM

Federation of State Medical Boards of the United States

Annual Subscription Dinner
TUESDAY, FEB. 8, 9 A. M.–12:15 P. M.
RED LACQUER ROOM

Federation of State Medical Boards of the United States

Annual Congress on Medical Education and Licensure
12:30 P. M.–4 P. M., CRYSTAL ROOM

FEDERATION SUBSCRIPTION LUNCHEON
Business Session

FEB. 5-8, 8 A. M.–5 P. M.
ROOM 15

HEADQUARTERS
American Medical Association Press
SATURDAY, 9 A. M.
GRAND BALL ROOM

Council on Medical Education and Hospitals, American Medical Association

Potential Use of Television in Postgraduate Medical Education
JOHN W. CLINE, M.D., *Presiding*

8:00 a. m. REGISTRATION

9:00 a. m. OPENING REMARKS
JOHN W. CLINE, M.D., Member of the Council on Medical Education and Hospitals, American Medical Association and Past President of the American Medical Association

9:10 a. m. SYMPOSIUM: EDUCATIONAL POTENTIAL OF TELEVISION IN POSTGRADUATE MEDICAL EDUCATION
DOUGLAS D. VOLLAN, M.D., Assistant Secretary, Council on Medical Education and Hospitals, American Medical Association, *Moderator*

What Has Television Done for General Education?
GARNET P. GARRISON, Director of Television, University of Michigan

Medical Television to Date
RALPH P. CREER, Secretary of Committee on Medical Motion Pictures, American Medical Association

Television at Medical Society Meetings
G. FRED ROLL, Director of Public Relations, Smith, Kline & French Laboratories, Philadelphia

A Closed Circuit Postgraduate Program
ARTHUR L. HOLLEB, M.D., Formerly Medical Producer-Director of Color Television for the American Cancer Society

An Open Circuit Postgraduate Program
ROBERT S. WARNER, M.D., Assistant Medical Director, American Heart Association, New York City, formerly Director of Postgraduate Medical Education, University of Utah College of Medicine

The Medical School as a Focus of Postgraduate Television
DAVID S. RUHE, M.D., Director Audio Visual Instruction, University of Kansas Medical Center

Future Prospects; Controlled Open Circuit Television
FRANK WARREN, M.D., Chairman, Subcommittee on Television, Albert Einstein College of Medicine

GENERAL DISCUSSION
SATURDAY, 2 P. M.
GRAND BALL ROOM

Council on Medical Education and Hospitals, American Medical Association

2:00 p. m. *Putting Television to Work in Postgraduate Medical Education*

Color vs. Black and White; Demonstration and Discussion
DAVID S. RUHE, M.D., *Moderator*

Kinescopes and Live Presentations: Demonstration and Discussion
J. EDWIN FOSTER, Ed.D., Director, Medical Audio Visual Institute of the Association of American Medical Colleges, Chicago, *Moderator*

Closed, Open and Controlled Open Circuit: Demonstration and Discussion
FRANK WARREN, M.D., *Moderator*

Costs and Financing Postgraduate Medical Television: Discussion
JOHN BOWERS, M.D., Dean, University of Utah College of Medicine, *Moderator*

5.00 p. m. *Summing Up*

5:15 p. m. Visit to Television Broadcasting Studios
SUNDAY, 9 A. M.
RED LACQUER ROOM

Advisory Board for Medical Specialties

ROBERT A. MOORE, M.D., *Presiding*

(Program to come)

SUNDAY, 2 P. M.

RED LACQUER ROOM

Federation of State Medical Boards of the United States

ELMER W. SCHNOOR, M.D., *Presiding*

2:00 p. m. ROLL CALL OF MEMBER BOARDS AND ASSOCIATE MEMBERS

Report of the President

ELMER W. SCHNOOR, M.D., President, Michigan Board of Registration in Medicine, Grand Rapids

Report of the President-Elect

M. H. CRABB, M.D., Secretary, Texas Board of Medical Examiners, Fort Worth

Report of the Secretary-Treasurer and Editor of the Federation Bulletin

WALTER L. BIERRING, M.D., Des Moines, Iowa

APPOINTMENT OF COMMITTEES

Panel Discussion: Essentials of a Modern Medical Practice Act. Report of the Study Committee

BRUCE UNDERWOOD, M.D., *Chairman,* Secretary, Kentucky State Board of Health, Louisville

WALTER E. VEST, M.D., Past Chairman, Medical Licensing Board of West Virginia, Huntington

S. M. POINDEXTER, M.D., Chairman, Idaho Board of Medicine, Boise

CREIGHTON BARKER, M.D., Secretary, Connecticut Medical Examining Board, New Haven

HOMER L. PEARSON, M.D., Secretary, Florida Board of Medical Examiners, Miami

GEORGE R. BUCK, M.D., President, Colorado Board of Medical Examiners, Denver

General Discussion

SUNDAY, 8 P. M.

ROOM 14

Federation of State Medical Boards of the United States

ELMER W. SCHNOOR, M.D., Presiding

8:00 p. m. *Panel Discussion: The Problem of Foreign Medical Graduates*

ELMER W. SCHNOOR, M.D.

STILES D. EZELL, M.D., Secretary, New York Board of Medical Examiners, Albany

WALTER L. BIERRING, M.D., Secretary-Treasurer, Federation of State Medical Boards of the United States, Des Moines

General Discussion

MONDAY, 9 A. M.

RED LACQUER ROOM

Council on Medical Education and Hospitals, American Medical Association

H. G. WEISKOTTEN, M.D., Presiding

8:00 a. m. REGISTRATION

9:00 a. m. *Address of the Chairman*

H. G. WEISKOTTEN, M.D., Chairman, Council on Medical Education and Hospitals, American Medical Association

9:30 a. m. *Symposium: Legal Medicine in Undergraduate Medical Education*

Preliminary Remarks

LOUIS J. REGAN, M.D., LL.B., Professor of Legal Medicine, College of Medical Evangelists; Clinical Professor of Forensic Medicine, University of Southern California School of Medicine; Member Committee on Medicolegal Problems, American Medical Association; Past President, American Academy of Forensic Sciences

Physician and the Law

GEORGE E. HALL, J.D., Staff Associate, Law Department, American Medical Association

Discussion to be opened by FRED E. INBAU, B.S., LL.M., Professor of Law, School of Law, Northwestern University; President-Elect, American Academy of Forensic Sciences

Physician and the Patient

LOUIS J. REGAN, M.D., LL.B.

Discussion to be opened by EDWIN J. HOLMAN, LL.B., Staff Associate, Law Department, American Medical Association

Scientific Medicolegal Investigation

ALAN R. MORITZ, M.D., Professor of Pathology, Western Reserve University School of Medicine; Chairman, Committee on Medicolegal Problems, American Medical Association

Discussion to be opened by SAMUEL A. LEVINSON, M.D., Professor of Clinical Pathology, University of Illinois College of Medicine; Past President, American Academy of Forensic Sciences

MONDAY, 2 P. M.

RED LACQUER ROOM

Council on Medical Education and Hospitals, American Medical Association

HARVEY B. STONE, M.D., Presiding

2:00 p. m. *An Experiment in Making the Hospital a Graduate Medical Center—A Preliminary Report*

HAROLD JEGHERS, M.D., Professor of Medicine, Director Department of Medicine, Georgetown University Medical Center; JOHN BUTLER, M.D., Director of Medical Education, St. Mary's Hospital, Rochester, N. Y., and JOHN O'BRIEN, M.D., Director of Medical Education, Mercy Hospital, Buffalo

2:30 p. m. *The Future Status of the Internship (Symposium)*

FRANKLIN D. MURPHY, M.D., Chancellor, University of Kansas; Member, Council on Medical Education and Hospitals, *Moderator*

Does the Internship Have a Place in Modern Medical Education?

EDWARD H. LEVEROOS, M.D., Director, Division of Hospitals and Graduate Education, Council on Medical Education and Hospitals, American Medical Association

THE PROS AND CONS

The Medical School. JOHN MCK. MITCHELL, M.D., Dean and Professor of Pediatrics, University of Pennsylvania.

The Non-Affiliated Hospital. FORD K. HICK, M.D., Professor of Medicine, University of Illinois College of Medicine

The State Licensing Board. STILES D. EZELL, M.D., Secretary, New York Board of Medical Examiners

The Specialty Board. DAVID A. BOYD JR., M.D., Secretary, American Board of Psychiatry and Neurology

The General Practitioner. W. B. HILDEBRAND, M.D., President, American Academy of General Practice

General Discussion

MONDAY, 5:30 P. M.

ROOM 14

Council on Medical Education and Hospitals, American Medical Association

Reception for Registrants of the Congress by the American Medical Association

7:00 P. M., CRYSTAL ROOM

Federation of State Medical Boards of the United States

FEDERATION SUBSCRIPTION DINNER

ELMER W. SCHNOOR, M.D., Toastmaster

The Responsibility of Licensing Authorities to Medical Education

DONALD G. ANDERSON, M.D., Dean, University of Rochester School of Medicine and Dentistry; formerly Secretary of the Council on Medical Education and Hospitals, American Medical Association

TUESDAY, 9 A. M.

RED LACQUER ROOM

Federation of State Medical Boards of the United States

ELMER W. SCHNOOR, M.D., Presiding

9:00 a. m. *Address of the President*
ELMER W. SCHNOOR, M.D.

9:30 a. m. *The Evaluation of Foreign Medical Graduates for Licensure*
A. C. FURSTENBERG, M.D., Dean, University of Michigan Medical School

10:00 a. m. *Postgraduate Training of Foreign Medical Students*
ROBERT BOGGS, M.D., Dean, New York University Post-Graduate Medical School

10:30 a. m. *Panel Discussion: Proposed Program for the Evaluation of Graduates of Foreign Medical Schools*
Representatives of:
Council on Medical Education and Hospitals, American Medical Association
Association of American Medical Colleges
American Hospital Association
Federation of State Medical Boards of the United States

TUESDAY, 12:30 P. M.

CRYSTAL ROOM

Federation of State Medical Boards of the United States

ELMER W. SCHNOOR, M.D., Presiding

12:30 p. m. FEDERATION SUBSCRIPTION LUNCHEON

1:30 p. m. GENERAL SESSION
Reports of Committees: Executive, Resolutions, Nominations and Miscellaneous

CONSIDERATION OF REPORT OF COOPERATING COMMITTEE ON GRADUATES OF FOREIGN MEDICAL SCHOOLS

NEW AND UNFINISHED BUSINESS

ELECTION OF OFFICERS

INSTALLATION OF PRESIDENT-ELECT
M. H. CRABB, M.D., Secretary, Texas Board of Medical Examiners

NEW STANDARD ON CONSULTATIONS

After many consultations with interested groups in the medical profession and many individuals, the Board of Commissioners of the Joint Commission on Accreditation of Hospitals has adopted the following new standard on consultations.—ED.

Standard Required—II. B. 3
Explanatory Note

In considering the Standard on Consultations, one should have clearly in mind what the purpose of this standard is. In the matter of consultations in which the interruption of pregnancy is involved, we are dealing not only with the protection of the patient and the fetus, but also of the doctor and the hospital. No matter how clearly an operative procedure of this nature may be indicated, it is an accepted principle that two or more physicians should agree before it is carried out. We are dealing here with not only professional but also moral and legal considerations. In considering first Caesarean sections, the situation is somewhat similar. The consultant in both instances need not be senior to the attending physician.

In the case of other consultations, those in which serious illness, poor surgical risk or obscure diagnosis is involved, it seems almost impossible to specify the conditions under which such consultations shall be required. In general, it is the conscience of the attending physician which will determine whether or not a consultation is needed. A standard which requires consultations in such instances would be for the purpose of controlling those physicians and surgeons who are less than normally conscientious and are willing to subject their patients to risk in order to maintain their own independence of action. It does not appear to be practicable to promulgate such a standard, and it would seem more fitting to leave this to the individual hospital staff. At the same time, a lack of records of consultations will constitute reasonable grounds for downgrading a hospital. All hospitals that deal with acute medical and surgical illness will, of necessity, have many instances in which consultations are indicated.

The question has been raised as to the definition of a consultant. A consultant is a second physician called by the attending doctor to examine and discuss his patient. In the sense in which we use the term, it does not necessarily imply seniority. If the Chief of a service calls one of his junior men who may have been working in a special field—say, for instance, pulmonary physiology or hematology—the younger man in seeing the patient is the consultant and should write the consultation note. The members of the consulting staff are on that staff because they have qualifications that make them valuable as consultants; but, in a given instance, any physician who sees a patient with a colleague is the consultant on that case, no matter what his standing on the staff may be. Of course, it is common for physicians to aid each other at times, informally, but in all instances in which the second physician makes a careful study of the problem presented by the patient, the consultation should be formalized by a note on the record. Although as stated above a consultant is, by definition, a second physician called to examine a patient, to satisfy the requirements of the Commission as stated in the Standard, the consultant must be qualified by training and/or experience to give a competent opinion in the special phase of the patient's illness about which he has been called to examine the patient. The determination of the consultant's competence should be made by the hospital staff. As stated in the Standard, a consultation is not complete or satisfactory unless it includes an examination of the patient and the patient's record and a written opinion signed by the consultant and attached to the record.

It is not practicable or proper to take the matter of Board certification into consideration. Board certification is no more than a relative indication of proficiency. Furthermore, a physician's standing as Chief of Service, or any like position, should not exempt him from carrying out his moral obligations to his patient. A chief of service who has the degree of humility that should be an attribute of all physicians in treating illness will seek the aid and advice of his colleagues when the situation is sufficiently serious. Except in emergency, consultation with another qualified physician shall be required in all first Caesarean sections and in all curettages or other procedures by which a

known or suspected pregnancy may be interrupted. The same requirement shall apply to operations performed for the sole purpose of sterilization on both male and female patients. Included in consultations required under this Standard are all those which are required under the rules of the hospital staff.

In major surgical cases in which the patient is not a good risk, and in all cases in which the diagnosis is obscure, or when there is doubt as to the best therapeutic measures to be utilized, consultation is appropriate. Obviously, judgment as to the serious nature of the illness and the question of doubt as to diagnosis and treatment rests with the physician responsible for the care of the patient. It is the duty of the hospital staff through its chiefs of service and Executive Committee to see that members of the staff do not fail in the matter of calling consultants as needed. A consultant must be well qualified to give an opinion in the field in which his opinion is sought.

A satisfactory consultation includes examination of the patient and the record and a written opinion signed by the consultant which is made part of the record. When operative procedures are involved, the consultation note, except in emergency, should be recorded prior to operation.

USE OF THE STANDARD NOMENCLATURE

Because of confusion that has recently developed with reference to the use of the Standard Nomenclature of Diseases and Operations and the International Statistical Classification of Diseases, Injuries, and Causes of Death in hospitals, this statement has been prepared and agreed to by Doris Gleason, R.R.L., executive director, American Association of Medical Record Librarians; Kenneth B. Babcock, M.D., director, Joint Commission on Accreditation of Hospitals; Edwin L. Crosby, M.D., director, American Hospital Association; and Austin Smith, M.D., Editor of THE JOURNAL.

The Standard Nomenclature should be used by the medical staffs of all hospitals to report the clinical diagnoses on patients discharged from the hospital. The terms in the Standard Nomenclature are approved standard terms for describing and recording clinical and pathological observations so as to provide a universal and uniform terminology of diagnoses. In addition, it is recommended that the medical record librarians use the numbers of the Standard Nomenclature in establishing the diagnostic index for the hospitals. The number of groups used should be determined locally and should depend on such considerations as the number of patients seen and the desires of the medical staff, as recommended by the Medical Records Committee. Preliminary study has indicated that certain modifications of the International Statistical Classification might render that list adaptable for use as a diagnostic index. It is strongly recommended, however, that, until the effectiveness of these modifications has been evaluated through the mediums of pilot studies, the Standard Nomenclature of Diseases and Operations be used by hospitals both as a nomenclature and as a system of classification for indexing diseases and operations.

EXHIBIT ON INDUSTRIAL SOLVENTS

Uses and abuses of common solvents found in and around the home and factory are shown in a new exhibit, "Industrial Solvents," prepared by the A. M. A.'s Bureau of Exhibits in cooperation with the Council on Industrial Health. Particularly stressed are the hazards involved in using carbon tetrachloride and other solvents incorporated in the paints, paint and varnish removers, and insecticides. As a precaution, the exhibit suggests adequate ventilation and proper labeling and lists the various symptoms and accepted treatments. The exhibit, suitable for professional showings, may be secured from the Bureau of Exhibits.

DR. HINMAN JOINS A. M. A. STAFF

Dr. John Hinman, of San Francisco, who was formerly on the staff of the Joint Commission on Hospital Accreditation, has been appointed assistant director of the division of hospitals and graduate education of the A. M. A. Council on Medical Education and Hospitals. Dr. Hinman will assist Dr. Edward H. Leveroos in the residency review program and will be directly responsible for the registration of technical schools and other activities.

PRECONVENTION AND POSTCONVENTION TOURS TO EUROPE

Air tours of Europe, sponsored by the American Medical Association and operated by United Air Lines in conjunction with Thomas Cook & Son, have been arranged to precede and follow the Annual Meeting at Atlantic City, N. J., June 6-10, 1955. Physicians and their wives have a choice of four itineraries, each of four weeks' duration. Departures from New York are scheduled for May 6, May 8, June 11, and June 13. Deluxe air service will be provided by Air France, British Overseas Airways Corp., KLM Royal Dutch, Pan American, Sabena Belgian, Scandinavian Airlines System, and Swissair airlines.

In addition to sojourns at capital cities and renowned "Old-World" resorts, the tours will include meetings in London, Paris, and Zurich at which eminent European scientists will lecture. Concurrent with the medical meetings, style shows will be presented in these cities and Rome for the distaff side. Among the cities to be visited on the preconvention tours, departing May 6 and 8, are London, Amsterdam, Haarlem, The Hague, Coblenz, Frankfurt, Zurich, Lucerne, Milan, Venice, Florence, Rome, Genoa, Monte Carlo, Grasse, Nice, and Paris. Surface transportation will include motor coach, a Rhine steamer, and gondolas in Venice. Accommodations on the "Blue Train," celebrated as offering the utmost in luxurious rail

Arc de Triomphe, Paris.

travel, will be provided between Nice and Paris. Points of interest on the itinerary range from the Tower of London to the Palace of the Doges. A partial listing follows:

Stoke Poges, Windsor Castle, Eton College, Hampton Court Palace, Westminster Abbey, Rembrandt's house, the Isle of Marken, the Aalsmeer flower market, St. Marks, the Pitti Palace, the Ponte Vecchio, the Colosseum, the Pantheon, the Sistine Chapel, the Louvre museum, the Ecole des Beaux-Arts, Notre Dame Cathedral, Napoleon's tomb, the Tuileries gardens, the palace of Versailles, and the Eiffel Tower.

Those enplaning on May 6 will return to New York on June 3; those enplaning on May 8 will return June 5. Postconvention tours, departing on June 11 and June 13, are generally similar to the earlier tours. Both include medical meetings and style shows. Itineraries encompass the cities and points of interest described. The cost of each tour is $1,598, which covers round-trip transportation, all enroute meals, and hotel accommodations. A deposit of $100 is required at the time of booking. Checks should be drawn to the order of United Air Lines for both the deposit and final payment, due April 8.

Those contemplating either a preconvention or a postconvention tour are urged to respond early so that final arrangements can be completed well in advance of departure dates. A tour folder with the official application blank attached will be mailed to all A. M. A. members in January. Requests for bookings or additional information should be addressed to: American Medical Association, Pre- and Post-Convention Tours, 5959 S. Cicero Ave., Chicago 38, Ill.

MEDICAL NEWS

CALIFORNIA

Decline in Deaths from Tuberculosis in Los Angeles.—According to Dr. George M. Uhl, city health officer, the number of deaths from tuberculosis per 100,000 population in Los Angeles fell from 185 in 1920 to 14 in 1953. Dr. Uhl attributes this decline to the wide application of free chest x-rays and the simultaneous improvement of medical care for patients.

Annual Graduate Assembly.—"The Dynamics of Metabolic Disease" will be the subject of the annual graduate assembly, Jan. 31 to Feb. 5, presented under the auspices of the committee for graduate medical education of the Alameda-Contra Costa Medical Association and the Institute for Metabolic Research of the Highland-Alameda County Hospital. The lectures will be delivered at Highland-Alameda County Hospital, 2701 Fourteenth Ave., Oakland. Enrollment is limited to 100 students. Topics to be discussed include clinical physiology of the kidney and of the liver; protein metabolism; acid-base, fluid, and electrolyte metabolism; and fat and energy metabolism. A metabolic clinic will be held Saturday morning. Out-of-state faculty members include: Drs. Frederic C. Bartter and Robert W. Berliner, Bethesda, Md.; Dr. Frank L. Engel, Durham, N. C.; Dr. Augustus Gibson, Rahway, N. J.; Dr. Irvin McQuarrie, Minneapolis; and Dr. Jonas H. Sirota, New York.

Study of Air Pollution.—Dr. Malcolm H. Merrill, state health director, recently announced that a special air pollution force of 12 physicians, engineers, statisticians, and consultants has launched a study of the effects of air pollution on public health and environment, with major emphasis on the Los Angeles smog situation. The project was ordered by Gov. Goodwin J. Knight, who allocated $100,000 in state emergency funds to the department to finance the study. The health department will submit its preliminary findings and recommendations in a report to the governor by March 1. The study force will conduct field and laboratory tests on the components of air pollution, supplementing its findings with information gathered by Stanford Research Institute; the U. S. Weather Bureau; U. S. Public Health Service; the Los Angeles Air Pollution Control District; Southern California Air Pollution Foundation; University of California research workers and scientists at Berkeley, Los Angeles, and Riverside; University of Southern California; California Institute of Technology; and local health departments. Dr. Lester Breslow, temporarily relieved of his duties as chief of the bureau of chronic diseases, will direct the air pollution study from the health department's San Francisco headquarters, 760 Market St.

COLORADO

Society News.—Newly elected officers of the Colorado Radiological Society include Dr. R. Parker Allen, Denver, president; Dr. John H. Freed, Denver, vice-president; Dr. Thomas J. Kennedy, Denver, treasurer; and Dr. Stuart A. Patterson, Fort Collins, secretary.

CONNECTICUT

Dr. Hines Honored.—Dr. Thomas F. Hines, director of physical medicine and rehabilitation at the Grace-New Haven Community Hospital and assistant professor of medicine, Yale University School of Medicine, has been cited for outstanding service by the President's committee for employment of the physically handicapped. Dr. Hines directed the establishment of the poliomyelitis clinic at the above hospital in 1952, and in 1953 a clinic for rehabilitation of the physically handicapped was established that uses the services of 14 physical therapists and includes a 31 bed ward and equipment necessary for special patient care. Since the program has been started, the hospital has received a grant of $20,500 for increasing physical therapy services from the National Foundation for Infantile Paralysis. Another grant by the foundation has provided $150,000 for rehabilitation teaching at Yale.

Institute for Medical Research.—Ground was recently broken in Ridgefield for the New England Institute for Medical Research, a nonprofit organization supported by private grants and gifts. In addition to physicians in various specialties, there will be doctorate personnel in physical sciences including nuclear physics, physical chemistry, engineering, and electronics. Such areas as histology, bacteriology, immunology, biochemistry, and radiobiology will also be incorporated. The physical plant will occupy an area of about 25,000 sq. ft. A grant has been made for the building of a linear electron accelerator as part of the program for investigation in neoplastic diseases. Clinical facilities will be added in order to make isotopes for both diagnosis and therapy available to the physicians of the area. It is anticipated that the building program will take about a year. Dr. John H. Heller is executive director of the institute.

ILLINOIS

Multiple Sclerosis Research.—Through a grant-in-aid from the National Multiple Sclerosis Society (270 Park Ave., New York 17), a punchcard filing "memory" will be put to work by the University of Illinois in an effort to collate all scientific data reported in the field of multiple sclerosis. The initial grant is for a preliminary period of six months, during which time it is hoped that the practicability of such a method of operation may be established and that "punchcard memory" service will become a regular resource to which scientific workers may turn in order to facilitate progress in research. By gathering listings of all the known information in the field into a single properly coded file, it is anticipated that immediate reference may be had to any topic in the field, thus obviating time-consuming searches of literature and needless repetition of experiments.

Chicago

Cook County Cardiac Conference.—The monthly clinicopathological cardiac conference of Cook County Hospital will be held Jan. 14 from 11 a. m. to 12 noon in the Children's Amphitheater, 700 S. Wood St. The guest speaker, Dr. Emmet B. Bay, professor of medicine, University of Chicago School of Medicine, will discuss "The Use of Anticoagulant Drugs in Cardiovascular Diseases." Physicians are cordially invited.

Course in Endocrinology.—The Chicago Medical School, 710 S. Wolcott Ave., will offer part 2 of its lecture series, "Progress in Endocrinology," Tuesdays, 12:30 p. m., in Amphitheatre A. The following presentations have been scheduled for January:

Jan. 11, Thyroid Hormones, Harry F. Weisberg.
Jan. 18, Adrenal Steroids (sponsored by the Sigma Xi Club), Rachmiel Levine.
Jan. 25, Epinephrine and Nor-Epinephrine, Richard W. Schayer, Ph.D.

Heart in Industry Conference.—A conference will be held at the Morrison Hotel, Jan. 12, under the sponsorship of the Chicago Heart Association and the Chicago Association of Commerce and Industry. Dr. Howard A. Lindberg will preside at the morning session, the theme of which will be "Helping the Heart Case in Industry." "Characteristics of a Good Industrial Medical Program," by Dr. Earle A. Irvin, medical director, Ford Motor Company, Dearborn, Mich., will precede a panel discussion, "Finding—Evaluating—Working with the Heart Patient in Industry," for which Dr. Carl M. Peterson, Secretary, A. M. A. Council on Industrial Health, will serve as moderator. Dr. Louis N. Katz, president, Chicago Heart Association, will be chairman at the luncheon meeting, at which

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

"Tensions and Your Heart" will be discussed. "Heart Patients Work Again" is the theme of the afternoon session, at which "A Message to Men Alive" will be delivered by Harold H. Hartley, business editor, *Indianapolis Times,* and a staff conference of the work classification unit will be moderated by Dr. Herman K. Hellerstein, director, work classification clinic, Cleveland Area Heart Society. Dr. Oglesby Paul, secretary of the Chicago Heart Association, will be chairman of the afternoon session. There will be no registration fee.

INDIANA

State Medical Election.—Officers of the Indiana State Medical Association for the 1954-1955 term include Dr. Walter L. Porteus, Franklin, president; Dr. Walter U. Kennedy, New Castle, president-elect; and Dr. Roy V. Myers, Indianapolis, reelected treasurer.

Personal.—Dr. L. Paul Hart, Evansville, has been named medical director for the International Harvester plant in that city, to succeed the late Dr. Karl R. Hefti.——Commander Robert E. Switzer (MC), U. S. N., of Cromwell, has been assigned as chief of neuropsychiatry at the Naval Hospital, Portsmouth, Va. ——Dr. William D. Snively Jr., Evansville, who has served as medical director of Mead Johnson & Company since 1949, has been named vice-president of that organization.

Two Cases of Botulism.—According to the U. S. Public Health Service, Dr. Albert L. Marshall, Indiana State Board of Health, reported two cases of botulism for the week ending Sept. 11, 1954. Antitoxin was administered, and both patients recovered. Illness occurred about 18 hours after consumption of a glass-packed food product that had been manufactured and packed by a local firm. All other lots of the food product were recalled before any other persons were poisoned. Botulinus toxin was demonstrated among the recalled lots as well as the original product. Food samples showed Clostridium organisms, and the toxin was confirmed by animal experiment. An investigation revealed unsanitary conditions in the manufacturing establishment and faulty processing.

MASSACHUSETTS

University News.—Dr. Carl A. Binger, formerly associated with the Rockefeller Institute for Medical Research, New York, and until recently on the faculty of the Cornell University Medical College and on the visiting staff of the New York Hospital, has been appointed lecturer on psychiatry at the Harvard Medical School and consulting visiting psychiatrist at the Massachusetts General Hospital, Boston. Also appointed psychiatric consultant to the medical staff of Radcliffe College, Cambridge, he will participate in the Radcliffe seminars, an adult education program at the graduate level offered to women in the greater Boston area. The title of his seminar is "The History of Psychiatry." Dr. Binger is editor-in-chief of *Psychosomatic Medicine.*

Trachoma Research Project.—The Arabian American Oil Company announces the undertaking of a five-year, $500,000 research program with the Harvard School of Public Health, Boston, on the prevention of trachoma. Aramco will contribute $100,000 annually and will make available the facilities of its new medical center in Dhahran, Saudi Arabia. A large part of a second floor wing of the Dhahran health center, including three modern laboratories, has been reserved for the project. Harvard University will provide the professional and technical staff for studies in the Middle East and in its laboratories at Boston. The research group will be directed by Dr. John C. Snyder, recently appointed dean of the school of public health, and will include Drs. Edward S. Murray and Robert Shih-man Chang.

MICHIGAN

Society News.—On Jan. 11 at 8:15 p. m. the Henry Ford Hospital Medical Society will present "The Differential Diagnosis and Management of the Lymphomata," by Dr. Charles A. Doan, dean and director of medical research, Ohio State University College of Medicine, Columbus.——Dr. Edward H. Rynearson, Rochester, Minn., will address the Wayne County Medical Society Jan. 10 about "Which Goiters Should Be Treated Surgically and Which with Radioactive Iodine," at the Wayne University College of Medicine auditorium at 8:30 p. m.

MISSOURI

Society News.—The St. Louis Medical Society and the Greater St. Louis Hospital Council will sponsor a meeting at 3839 Lindell Blvd., Jan. 13, 1:30 p. m., to consider the question, "Why Hospital Accreditation?" Drs. Kenneth D. Babcock, director, Joint Commission Accreditation of Hospitals, Chicago, and Robert S. Myers, assistant director, American College of Surgeons, Chicago, will discuss what accreditation means to the physician, the hospital, and the patient.

NEW YORK

University News.—Dr. William A. Harris, a past president of the Charles County (Md.) Medical Society, was recently appointed assistant dean for postgraduate medical education at State University of New York College of Medicine at Syracuse and simultaneously was promoted to assistant professor in public health and preventive medicine. Dr. Harris replaces Dr. R. Lee Walton, who has entered military service.——Dr. Lawrence K. Pickett, since 1951 a faculty member of the State University of New York College of Medicine at Syracuse, has been promoted to clinical associate professor of surgery.

Annual Hobby Show.—The ninth annual Hobby Show for Older Persons, sponsored by the Welfare and Health Council of New York City, will be held Feb. 10 to 20 at the American Museum of Natural History, 77th Street and Central Park West. Persons aged 60 years or over who live within 60 miles of New York City are invited to participate. Exhibits demonstrating any kind of skill, but not intended for commercial or advertising purposes, may be entered. All items must be current or completed within the past few years. Those whose hobbies are performances—such as music, dramatics, or dancing—are also invited to participate. Entry blanks for exhibitors may be obtained from the Hobby Show Committee, Welfare and Health Council of New York City, 44 E. 23rd St., New York 10 (telephone ALgonquin 4-5500). No fee is required, and admission to the show will be free to the public.

Appointments at Brookhaven.—Dr. Lee E. Farr, medical director of Brookhaven National Laboratory, Upton, L. I., announces several appointments to the staff of the medical department: Dr. John L. MacIver Jr., recently flight surgeon in the U. S. Navy, has joined the division of industrial medicine. Dr. Hershel Sandberg, recently a resident in medicine at Albert Einstein Medical Center, Philadelphia, is a member of the division of physiology at Brookhaven and assistant physician to the hospital. Dr. Walton W. Shreeve, who has completed a tour of duty as head of the isotope laboratory at the U. S. Naval Hospital, Oakland, Calif., becomes a physician in the division of biochemistry at Brookhaven and physician to the hospital. Dr. William H. Perkins, formerly instructor in medicine at the University of Arkansas School of Medicine, Little Rock, has accepted an appointment in the division of physiology and will be assistant physician to the hospital. Commander E. P. Cronkite, formerly head of the hematology division at the Naval Medical Research Institute, Bethesda, Md., will pursue similar duties in the division of pathology at Brookhaven.

New York City

Leopold Stieglitz Lecture.—Dr. Stanley Cobb, Bullard professor of neuropathology, emeritus, at Harvard Medical School, Boston, gave the fifth annual Leopold Stieglitz lecture, "Multiple Etiology in Psychiatry and Medicine," at New York University College of Medicine, Dec. 15, 1954. Before his retirement last July, Dr. Cobb was psychiatrist-in-chief at Massachusetts General Hospital. Dr. Stieglitz, aged 86, is in his 63rd year of general practice under the state board of regents' medical license no. 1, which he received in 1891 when he passed the board's first examination with a combined mark, in five subjects, of 499 out of a possible 500, shortly after receiving his medical degree, *summa cum laude,* at Heidelberg University, Germany.

Death of Jacob Goldberg.—Jacob A. Goldberg, Ph.D., director of the social hygiene division of the New York Tuberculosis and Health Association since 1927, died at Mt. Sinai Hospital, Dec. 12, 1954, after a brief illness. On National Social Hygiene Day (April 22), an event that he originated in 1937, Dr. Goldberg was made an honorary life member of the American Social Hygiene Association.

Personal.—Dr. Arthur A. Knapp, addressing the Bucks County Medical Society in New Hope, Pa., recently presented "Criteria for Eye Surgery: The Physiologic Bases" and showed a Kodachrome film on the surgery of tattooing with iridectomy.——Dr. H. Houston Merritt, professor of neurology at Columbia University College of Physicians and Surgeons and director of the service of neurology, neurological institute, Columbia–Presbyterian Medical Center, has been elected vice-president of United Cerebral Palsy.——Dr. Frank Fremont-Smith, president of the World Federation for Mental Health, and Dr. John R. Rees, London, England, director of the federation, recently embarked on a trip to the Middle East and the Far East to seek ways in which the organization may extend its mental health and human relations activities into those regions.

Courses in Industrial Safety.—New York University will offer the following courses in the spring term, beginning Feb. 7:

SC-4, Safety Directors and Safety Engineers—Their Qualifications, Duties, and Responsibilities.
SC-5, Safety Organization: Values and Limitations.
SC-6, Management and Supervision in Accident Prevention.
SC-7, Industrial Hygiene and Occupational Diseases.
SC-10, Accident Prevention for Operators of Smaller Motor Vehicle Fleets: Operating the Program.
SC-15, Special Problems in Accident Prevention.
SC-16, Psychology of Accident Prevention.
SC-18, Industrial Safety Technology and Instrumentation.

Students may register for any of the above courses during the week before the courses begin (Jan. 31 to Feb. 4, from 9 a. m. to 8 p. m., at the Center for Safety Education, Room 42, 1 Washington Square North) or on the first evening of each course. Registration may also be completed by mail. Fees are $25 per course, plus a $2 registration fee, which each student pays once a term regardless of the number of courses taken. Information may be secured by writing to the Center for Safety Education, New York University, Washington Square, New York 3, or by telephone, SPring 7-2000, extensions 312 and 632.

NORTH CAROLINA

Seminar on Industrial Health.—A regional seminar on industrial health, co-sponsored by the occupational health committee of the Medical Society of the State of North Carolina, the Liberty Mutual Insurance Company, and the University of North Carolina School of Medicine, Chapel Hill, will be held Jan. 13 and 14. Physicians and industrialists have been invited to attend the Thursday afternoon sessions, which are designed to be of interest to both of these groups. Friday's sessions will deal with topics primarily of concern to physicians. The seminar has been planned (1) to give an interpretation of industrial health, the need for it, what an adequate program consists of, and the contribution it makes to industrial efficiency and (2) to provide assistance and guidance for industrial physicians, particularly those general physicians employed by industry on a part-time basis, with respect to some of the common problems with which they are faced.

OHIO

Society News.—The fifth annual meeting of the Mont Reid Surgical Society was held Nov. 22 and 23, 1954, at the Cincinnati General Hospital. The program consisted of operative clinics conducted by the surgical residents of the hospital. Dr. H. Glenn Bell, San Francisco, presided at the annual dinner, at which Dr. Sumner L. Koch, Chicago, was the guest speaker.

Dr. Goldblatt Named Professor at Western Reserve.—Dr. Harry Goldblatt has been appointed professor of experimental pathology at Western Reserve University School of Medicine, Cleveland, where he was a faculty member for more than 25 years before leaving Cleveland in 1946 to direct the institute of medical research at Cedars of Lebanon Hospital in Los Angeles. Dr. Goldblatt returned to Cleveland in 1953 as director of laboratories at Mount Sinai Hospital (THE JOURNAL, Dec. 13, 1953, page 1370).

PENNSYLVANIA

Personal.—Dr. Leroy E. Chapman, Warren, recently chosen president of the Association of Physicians and Surgeons, was elected to his seventh term as senator in the General Assembly of Pennsylvania in the November, 1954, election.

Navy Needs Civilian Physicians.—Owing to the shortage of medical officers, the Secretary of the Navy has authorized employment of civilian physicians at the industrial activities of the Navy and Marine Corps. According to the *Pennsylvania Medical Journal*, it is estimated that a total of 10 civilian physicians may be employed at the Philadelphia Naval Shipyard on the basis of a 40-hour work week. Graduates of approved class A medical schools who have had 12 months' internship in an approved hospital and possess a license to practice in Pennsylvania or New Jersey may be considered for appointment. Applicants must be physically qualified to perform all duties assigned by the senior medical officer of the Naval Dispensary. Successful applicants may be promptly appointed and employed a month or two after security clearance. Interested civilian physicians should contact Capt. C. C. Shaw (MC), U. S. N., at the Naval Dispensary, Philadelphia Naval Shipyard (telephone HO 5-1000, extension 2290), during working hours. Personal interviews are required.

Philadelphia

Lectures on Psychosomatic Medicine.—In its Thursday (4 p. m.) series of lectures on psychosomatic medicine for the general medical profession, the Philadelphia Institute for Education and Research in Psychiatry, an affiliate of the Philadelphia Psychiatric Hospital, offers the following lectures at the hospital:

Jan. 13, How Should the Nonpsychiatrist Handle the Psychiatric Problems in His Patients? Robert P. Knight, New Haven, Conn.
Feb. 17, The Essence of Psychotherapy, Maurice Levine, Cincinnati.
March 17, The Psychiatric Problems in a General Hospital, Grete L. Bibring, Boston.
April 14, Editorial Perspective in Psychosomatic Medicine, Carl A. Binger, New York.

Pittsburgh

Course in Electrocardiography.—A Wednesday course in electrocardiography, Jan. 12 to March 16, will be conducted by the Western Pennsylvania Heart Association in the Mellon Institute auditorium from 10 a. m. to 12 noon; registration fee is $20. The meetings are open to the medical profession. Information may be had from the Western Pennsylvania Heart Association, 1306 Keenan Bldg., 643 Liberty Ave., Pittsburgh 22 (ATlantic 1-5910).

University News.—The Schools of the Health Professions of the University of Pittsburgh have added to their staff Frederick Stone, Ph.D., who since 1948 has served as a commissioned officer with the U. S. Public Health Service, National Institutes of Health, at Bethesda, Md. For the past three years he has been chief of extramural programs of the National Institute of Neurological Diseases and Blindness. From 1948 to 1951 he served as chief of the division of research grants of the research fellowships branch. Before joining the U. S. Public Health Service Dr. Stone had been a zoology instructor at the University of Rochester, N. Y.

TEXAS

Society News.—The Texas Rheumatism Association recently elected Dr. Charles H. Cornwell, Marlin, president; Drs. Frank F. Parrish and Jesse W. Hofer, Houston, vice-presidents; and Dr. Warren W. Moorman, Fort Worth, secretary-treasurer.

Pediatric Conference.—On Feb. 10 to 12, a pediatric conference will be held at the University of Texas Medical Branch, Galveston, under the auspices of the postgraduate division of the

University of Texas Medical Branch, the Child Health Program, University of Texas, and the Texas chapter of the Academy of General Practice. The guest speakers will be Dr. Jerome Glaser, pediatric allergist, University of Rochester (N. Y.) School of Medicine and Dentistry; Dr. John P. Caffey, pediatric roentgenologist, Columbia University College of Physicians and Surgeons, New York; and Dr. Edward L. Pratt, chairman, department of pediatrics, Southwestern Medical School of the University of Texas, Dallas.

WASHINGTON

Personal.—At a luncheon meeting in Seattle, Dr. John A. Kahl, Seattle, acting director of the state health department, and Dr. Donal R. Sparkman were presented citations for outstanding service from the President's committee on employment of the physically handicapped. The citations honor each "in recognition of his outstanding efforts expended in promoting equal opportunity in employment for the physically handicapped."

Dr. Aagaard Appointed Dean of Medical School.—Dr. George Nelson Aagaard, dean of Southwestern Medical School of the University of Texas, Dallas, has become dean of the University of Washington School of Medicine, filling the post left vacant when Dr. Edward L. Turner, first dean of the school of medicine, resigned to become Secretary of the A. M. A. Council on Medical Education and Hospitals. Dr. Aagaard was formerly affiliated with his alma mater, the University of Minnesota Medical School, Minneapolis, as fellow, instructor, and assistant professor, and in 1948 was appointed director of postgraduate medical education and associate professor of medicine.

HAWAII

Society News.—Newly elected officers of the Honolulu Pediatric Society include Dr. John T. Kometani, Honolulu, president; Dr. Marion L. Hanlon, Honolulu, recording secretary; and Dr. Duke Cho Choy, Honolulu, corresponding secretary-treasurer.

GENERAL

Casselberry Prize.—The American Laryngological Association announces, "A sufficient sum having accrued from the Casselberry Fund for encouraging advancement in the art and science of laryngology and rhinology, this sum is now available, in part or as a whole, for a prize award." Theses must be in the hands of the secretary, Dr. Harry P. Schenck, 326 S. 19th St., Philadelphia, before March 1.

Diabetes Association Invites Papers.—The American Diabetes Association, which will hold its annual meeting at Chalfonte-Haddon Hall in Atlantic City, June 4 and 5, preceding the American Medical Association's Annual Meeting, June 6 to 10, invites physicians and other scientists to submit abstracts of papers that they would like to present at the scientific sessions. To facilitate review of the material by the committee, eight copies of the abstracts should be sent to the association (1 E. 45th St., N. W., New York 17).

Ciba Award in Geriatrics.—The Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research (41, Portland Place, London, W.1, England) will award five prizes (about £300, or $840, each) for experimental research into problems of aging. The entry may be in any language, but a summary in English (not exceeding 500 words) must be attached. The work submitted should be unpublished but may be under consideration for publication at the closing date for entries. In making the awards, preference will be given to younger workers. Entries must be received before Feb. 28 by G. E. W. Wolstenholme, Director and Secretary to the Executive Council. Awards will be made in July.

American Society for Artificial Internal Organs.—A group of about 30 investigators and clinicians, prominent in the development of artificial kidneys, artificial heart-lung machines, and similar biomechanical equipment, have organized a society for the purpose of exchanging information and stimulating developments in this field. The first meeting will be held in conjunction with the Annual Meeting of the American Medical Association, June 4 and 5, in Atlantic City, N. J. Arrangements for a scientific program and a dinner meeting are under way. Information may be obtained from the Acting Secretary, Dr. Peter F. Salisbury, Institute for Medical Research, Cedars of Lebanon Hospital, 4751 Fountain, Los Angeles 29.

Film on Rheumatic Fever.—"The Valiant Heart," a half-hour motion picture story of an 8-year-old boy's successful fight against rheumatic fever, recently had its world premiere in Wolfeboro, N. H., where it was produced for the American Heart Association and its affiliates by MPO Productions, Inc., with funds contributed by E. R. Squibb and Sons. Residents of the Wolfeboro area play all the roles in the film. The picture will be distributed nationally by the 55 affiliates and 350 chapters of the American Heart Association to illustrate dramatically the basic facts about rheumatic fever and to show how the disease must be treated to minimize its damaging effects on the heart and to give its victims the best chance for a productive life.

Fellowships in Health Education.—The National Foundation for Infantile Paralysis announces that a limited number of one year fellowships in the field of health education are available to health educators now employed in state departments of education or state departments of health. The purpose of this program is to give an opportunity for further training to those concerned with health education at the state level who intend to return to positions in state departments of education or of health. All candidates must be U. S. citizens (or applicants for citizenship) and must be in sound health. Other eligibility requirements include a baccalaureate degree, with substantial training in biological science and in education or other social sciences, and a minimum of two years as an educator in the field of health. The program may be undertaken at any school of public health in the United States that offers a graduate program in training in health education and that is approved by the American Public Health Association. Financial assistance will be given to accepted candidates for tuition and maintenance, depending on the individual need as determined by marital status and number of dependents. Application for these fellowships may be made to the national foundation at any time during the year. However, applications to be considered in May must be received by March 1; for consideration in November, by Sept. 1; and for consideration in February, 1956, by Dec. 1. Information may be obtained from National Foundation for Infantile Paralysis, Division of Professional Education, 120 Broadway, New York 5.

Physicians Wanted for Service in Japan.—The Atomic Bomb Casualty Commission of the National Academy of Sciences, which is conducting a long-term medical follow-up study of bomb survivors for late or delayed effects of radiation, is seeking an internist and a pathologist to serve as department heads at the Nagasaki installation in Japan. By July it is anticipated that replacements may be needed for two internists, one or two pediatricians, two head nurses, a radiologist, and supervisors for x-ray and clinical laboratories. The commission maintains modern clinics in both Hiroshima and Nagasaki. Medical personnel, recruited for two-year terms of service, participate in the overall routine research program and are encouraged to undertake individual problems as well, the scope of the research opportunity being largely limited by the ingenuity and research drive of the individual investigator. The commission pays for the transportation of staff members, their families, household goods, and car to and from Japan and provides houses with basic furniture, rugs, dishes, kitchen utensils, electric stoves, and refrigerators at nominal rentals. Elementary and high schools of the local U. S. Army post are open to children of ABCC families. Salaries are about the same as for comparable positions in the United States. The cost of living, however, is somewhat lower in Japan, and income taxes are refundable after 18 months in Japan. Information may be obtained from Frank H. Connell, Ph.D., Executive Director, Committee on Atomic Casualties, Division of Medical Sciences, National Academy of Sciences–National Research Council, 2101 Constitution Ave., Washington 25, D. C.

Society News.—Officers of the **Association of Schools of Public Health** for 1955 include Ira V. Hiscock, M.P.H., New Haven, Conn., president; Dr. Charles E. Smith, San Francisco, vice-president; and Dr. James A. Crabtree, Pittsburgh, secretary-treasurer.——The **Association of American Physicians** announces that Dr. A. McGehee Harvey has been appointed its recorder to succeed Dr. Cecil J. Watson, Minneapolis. Further correspondence and materials submitted in exchange should be sent to Dr. Harvey at the Johns Hopkins Hospital, Baltimore 5.——Officers for the 1954-1956 term of the **American Association of Anatomists** are Samuel R. Detwiler, Ph.D., New York, president; Walter E. Sullivan, Ph.D., Madison, Wis., first vice-president; Leon S. Stone, Ph.D., New Haven, Conn., second vice-president; Oliver P. Jones, Ph.D., Buffalo, program secretary; and Dr. Normand L. Hoerr, Cleveland, secretary-treasurer.——Newly elected officers of the **Pacific Dermatologic Association** include Dr. Maximilian E. Obermayer, Los Angeles, president; Dr. Walter C. Herold, Colorado Springs, Colo., vice-president; Dr. Manuel F. Allende, San Francisco, assistant secretary; and Dr. Ben A. Newman, Beverly Hills, Calif., secretary-treasurer. The next meeting will be held in Mexico City, Mexico, Aug. 22 to 24, 1955.——The **Association of University Radiologists** was recently organized. Officers elected for the year are Drs. Henry S. Kaplan, San Francisco, president; William B. Seaman, St. Louis, president-elect; and John F. Holt, Ann Arbor, Mich., secretary-treasurer. The purpose of the society is to encourage laboratory and clinical investigation in radiology by the informal exchange of ideas, to stimulate interest in academic radiology as a medical career, and to advance radiology as a medical science. Any person who occupies a full-time faculty position in a university department of radiology and who shows promise of a successful career in academic work may be nominated for election to the association. Currently there are 38 active and 7 emeritus members representing 20 different universities. The next meeting of the association will be held at the University of Michigan in May. Correspondence may be addressed to the office of the Secretary-Treasurer, G-432, University Hospital, Ann Arbor, Mich.

LATIN AMERICA

Cuba Presents Scrolls on Carlos Finlay's Birthday.—For many years Cuba has designated the anniversary of the birth of Dr. Carlos J. Finlay, the Cuban scientist, as the Day of the Physician. At a meeting of the Cuban National College of Medicine held on that day (Dec. 3, 1954), Dr. Augusto Fernández Conde, president of the college, presented Dr. Elmer Hess, Erie, Pa., President-Elect of the American Medical Association; Dr. Louis H. Bauer, Hempstead, N. Y., past president of the A. M. A.; Dr. Tom D. Spies, Birmingham, Ala.; Dr. Robert Sanders; and Mr. C. P. Loranz with scrolls making them honorary members of the college (see illustration). Dr. Hess made the speech of acceptance for the group. After the meeting a reception was held at the Cuban Academy of Sciences, where Dr. Morales del Castillo, provisional president of Cuba, presented these men with Finlay medals and honorary diplomas of the academy. The World Medical Association, the American Medical Association, the Southern Medical Association, and several Cuban medical organizations are working closely together to improve the status of medical science throughout the world.

Presentation of scrolls on the Day of the Physician.

Society News.—The Sociedad Argentina de Leprologia was established Aug. 27, 1954, with headquarters in those of the Asociacion Medica Argentina, Santa Fe, 1171, Buenos Aires, Argentina. The officers include: president, Dr. Jose M. Fernandez, Rosario; vice-president, Dr. Leonidas Llano, Buenos Aires; secretary-general, Dr. Ernesto T. Capurro, Buenos Aires; and coordinating secretary, Dr. Guillermo Basombrio, Buenos Aires.

FOREIGN

Birthday Pilgrimage to Dr. Schweitzer.—The World Parliament of Religions has arranged a "birthday pilgrimage" to the jungle hospital of Dr. Albert Schweitzer in Lambaréné, French Equatorial Africa, in honor of his 80th birthday, Jan. 14 (THE JOURNAL, Dec. 25, 1954, page 1586). The pilgrimage is part of a globe-circling goodwill mission that was scheduled to leave New York during the first week in January.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.
1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Hotel Shoreham, Washington, D. C., Jan. 24-26. Dr. Carl M. Peterson, 535 North Dearborn St., Chicago 10, Secretary.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, Palmer House, Chicago, Feb. 5-8. Dr. Edward L. Turner, 535 N. Dearborn St., Chicago 10, Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Schroeder Hotel, Milwaukee, Wis., Feb. 24-26. Mrs. Arline Hibbard, 535 N. Dearborn St., Chicago 10, Secretary.

AMERICAN ACADEMY OF ALLERGY, Hotel Statler, New York, Feb. 7-9. Dr. Francis C. Lowell, 65 East Newton St., Boston, Secretary.

AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE, Hotel Warwick, Philadelphia, Feb. 10-11. Dr. Leonard J. Goldwater, 600 West 168th St., New York 32, Secretary.

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Hotel Statler, Los Angeles, Jan. 29-Feb. 3. Dr. J. R. Norcross, 122 S. Michigan Blvd., Chicago 3, Secretary.

AMERICAN COLLEGE OF RADIOLOGY, Drake Hotel, Chicago, Feb. 11-12. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, Hotel Sherman, Chicago, Feb. 28-Mar. 2. Dr. Jessie E. Crampton, 1790 Broadway, New York 19, Secretary.

ATLANTA GRADUATE MEDICAL ASSEMBLY, Atlanta Biltmore Hotel, Atlanta, Ga., Feb. 21-24. Mrs. Stewart R. Roberts, 15 Peachtree Place, N.W., Atlanta, Ga., Executive Secretary.

CENTRAL SURGICAL ASSOCIATION, Drake Hotel, Chicago, Feb. 17-19. Dr. Robert M. Zollinger, University Hospital, Columbus 10, Ohio, Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, Mar. 1-4. Dr. Norris J. Heckel, 86 East Randolph St., Chicago 1, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Drake Hotel, Chicago, Feb. 5-6. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, Mar. 4-7. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

INTERNATIONAL POST-GRADUATE MEDICAL ASSEMBLY OF SOUTHWEST TEXAS, San Antonio, Texas, Jan. 24-26. Dr. John M. Smith Jr., P.O. Box 2445, San Antonio 6, Texas, Secretary.

MIDDLE SECTION, AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, Sheraton-Cadillac Hotel, Detroit, Jan. 24. Dr. James E. Croushore, 3001 West Grand Blvd., Detroit 2, Chairman.

NORTHWEST SOCIETY FOR CLINICAL RESEARCH, Vancouver, B. C., Jan. 22. Dr. Arthur L. Rogers, 1216 S. W. Yamhill St., Portland 5, Oregon, Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

DELAWARE, Wilmington, Feb. 5. Dr. Lewis B. Flinn, 503 Delaware Ave., Wilmington 1, Chairman.

NEBRASKA, Omaha, Feb. 26. Dr. J. D. McCarthy, 107 S. 17th St., Omaha, Governor.

SOUTHERN CALIFORNIA, San Diego, Feb. 12-13. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

VIRGINIA, Richmond, Feb. 24. Dr. Charles M. Caravati, 807 W. Franklin St., Richmond 20, Governor.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

OHIO, Cleveland, Cleveland and Hollenden Hotels, Feb. 21-24. Dr. Stanley O. Hoerr, 2020 East 93d St., Cleveland, Chairman.

RHODE ISLAND, Providence, Sheraton-Biltmore Hotel, Mar. 3-5. Dr. Henri E. Gauthier, 34 Hamlet Ave., Woonsocket, Chairman.

TEXAS, Galveston, Buccaneer and Galvaz Hotels, Jan. 17-19. Dr. Robert M. Moore, 900 Strand Street, Galveston, Chairman.

SOCIETY OF UNIVERSITY SURGEONS, Hotel Shamrock, Houston, Texas, Feb. 9-12. Dr. C. Rollins Hanlon, 1325 S. Grand Blvd., St. Louis, Secretary.

SOUTH ATLANTIC ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, Williamsburg, Va., Feb. 10-12. Dr. C. H. Mauzy, Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Atlanta Biltmore Hotel, Atlanta, Ga., Feb. 21-24. Dr. Benjamin T. Beasley, 701 Hurt Bldg., Atlanta, Ga., Secretary.

SOUTHERN NEUROSURGICAL SOCIETY, Dinkler-Tutwiler Hotel, Birmingham, Ala., Feb. 18-19. Dr. William F. Meacham, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

SOUTHERN SECTION, AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, Medical School Auditorium, Charlottesville, Va., Jan. 24. Dr. G. Slaughter Fitz-Hugh, 104 East Market St., Charlottesville, Va., Chairman.

WESTERN SECTION, AMERICAN FEDERATION FOR CLINICAL RESEARCH, Carmel, Calif., Jan. 27. Dr. Arthur B. French, University of Utah College of Medicine, Salt Lake City, Secretary.

WESTERN SECTION, AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, The Town House, Los Angeles, Jan. 15-16. Dr. Victor Goodhill, 2007 Wilshire Blvd., Los Angeles 57, Vice President.

WESTERN SOCIETY FOR CLINICAL RESEARCH, Carmel, Calif., Jan. 28-29. Dr. Herbert N. Hultgren, Stanford Hospital, San Francisco 15, Secretary.

FOREIGN AND INTERNATIONAL

AUSTRALASIAN MEDICAL CONGRESS, Sydney, N.S.W., Australia, Aug. 20-27. For information write: Federal Council of the B.M.A. in Australia, 135 Macquaire St., Sydney, N.S.W., Australia.

BRITISH MEDICAL ASSOCIATION, Representative Meeting, London, England, June 1-4. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN AND BRITISH MEDICAL ASSOCIATIONS, Joint Meeting, Toronto, Canada, June 20-22. Dr. Arthur D. Kelly, 244 St. George St., Toronto, Canada, General Secretary.

COMMONWEALTH HEALTH AND TUBERCULOSIS CONFERENCE, Royal Festival Hall, London, England, June 21-25. Mr. J. H. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.1, England, Secretary General.

CONGRESS OF INTERNATIONAL ASSOCIATION OF APPLIED PSYCHOLOGY, London, England, July 18-23. Dr. C. B. Frisby, National Institute of Industrial Psychology, 14 Welbeck St., London, W.1, England, President.

CONGRESS OF INTERNATIONAL ASSOCIATION OF PSYCHOTECHNOLOGY, London, England, July 18-23. For information write: Dr. C. B. Frisby, Director, National Institute of Industrial Psychology, 14 Welbeck St., London, W.1, England.

CONGRESS OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Stockholm, Sweden, June 18-19. For information write: Dr. J. M. Lemoine, 187 boulevard St. Germain, Paris 7°, France.

CONGRESS OF INTERNATIONAL DIABETES FEDERATION, Cambridge, England, July 4-8. Mr. James G. L. Jackson, 152 Harley St., London, W.1, England, Executive Secretary General.

CONGRESS OF INTERNATIONAL SOCIETY OF SURGERY, Copenhagen, Denmark, July 23-29. Dr. L. Dejardin, 141 rue Belliard, Brussels, Belgium, General Secretary.

EUROPEAN CONGRESS ON RHEUMATISM, Scheveningen, The Hague, Netherlands, June 13-17. Dr. H. van Swaay, Pieter Bothstraat 12, The Hague, Netherlands, Secretary.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Bournemouth, England, April 26-29. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTER-AMERICAN CONGRESS OF RADIOLOGY, Shoreham Hotel, Washington, D. C., U. S. A., April 24-29. Dr. Eugene P. Pendergrass, 3400 Spruce St., Philadelphia 4, Pa., U. S. A., Secretary-General.

INTER-AMERICAN SESSION, AMERICAN COLLEGE OF SURGEONS, Universidad Mayor de San Marcos de Lima, Lima, Peru, S. A., Jan. 11-14. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

INTERNATIONAL ANATOMICAL CONGRESS, Paris, France, July 25-30. Prof. Gaston Cordier, 45, rue des Saints-Pères, Paris 6°, France, Secretary-General.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Washington, D. C., U.S.A., Oct. 24-27. For information write: Dr. William Friend, 515 Nome Avenue, Akron 20, Ohio, U. S. A.

INTERNATIONAL CONGRESS OF ALLERGOLOGY, Rio de Janeiro, Brazil, S. A., Nov. 6-12. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7°, France, Secretary General.

INTERNATIONAL CONGRESS OF ANGIOLOGY AND HISTOPATHOLOGY, Fribourg, Switzerland, Sept. 2—. For information write: Dr. Gerson, 4 rue Pasquier, Paris 8°, France.

INTERNATIONAL CONGRESS OF BIOCHEMISTRY, Brussels, Belgium, Aug. 1-6. Prof. C. Liebecq, 17 Place Delcour, Liège, Belgium, Secretary-General.

INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY, Lausanne, Switzerland, May 26-31. Professor Hauduroy, 19 rue Cesar Roux, Lausanne, Switzerland, Secretary-General.

INTERNATIONAL CONGRESS OF CRIMINOLOGY, London, England, Sept. 11-18. For information write: Dr. Carroll, 28 Weymouth St., London, W.1, England.

INTERNATIONAL CONGRESS OF EUROPEAN SOCIETY OF HAEMATOLOGY, Freiburg i,Br., Germany, Sept. 20-24. Prof. Dr. L. Heilmeyer, Hugstetter Strasse, 55, Freiburg i,Br., Germany, Chairman.

INTERNATIONAL CONGRESS OF PLASTIC SURGERY, Stockholm, Sweden, Aug. 1-4, and Uppsala, Sweden, Aug. 5. Dr. Tord Skoog, Uppsala, Sweden, General Secretary.

INTERNATIONAL CONGRESS OF UROLOGY, Athens, Greece, April 10-18. Dr. Z. Kaires, 25, rue Voukourestion, Athens, Greece, Secretary General.

INTERNATIONAL HOSPITAL CONGRESS, Lucerne, Switzerland, May 30-June 3. Capt. J. E. Stone, International Hospital Federation, 10 Old Jewry, London, E.C.2, England, Hon. Secretary.

INTERNATIONAL MEDICAL CONGRESS, Verona, Italy, Sept. 1-4. For information write: % Offices of the International Verona Fair, Piazza Bra., Verona, Italy.

INTERNATIONAL SURGICAL CONGRESS, Geneva, Switzerland, May 23-26. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

INTERNATIONAL SYMPOSIUM ON CARDIOVASCULAR SURGERY, Henry Ford Hospital, Detroit, Michigan, U. S. A., March 17-19. Dr. Conrad R. Lam, 2799 West Grand Boulevard, Detroit 2, Michigan, U. S. A., Chairman of Program Committee.

INTERNATIONAL SYNDICATE OF GYNECOLOGISTS AND OBSTETRICIANS, Meeting Hall of Medical Societies, Paris, France, June 27-28. Dr. Jacques Courtois, 1, rue Racine, Saint-Germain-en-Laye (S & O), France, Secretary-General.

JAPAN MEDICAL CONGRESS, Kyoto University and Kyoto Prefectural Medical College, Kyoto, Japan, April 1-5. Dr. Mitsuharu Goto, University Hospital, Medical Faculty of Kyoto University, Kyoto, Japan, Secretary-General.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Lima, Peru, S. A., Feb. 14-19. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, N. Y., U.S.A., Executive Director.

LATIN AMERICAN ELECTROENCEPHALOGRAPHICAL CONGRESS, Montevideo, Uruguay, S. A., March 21-24. For information write: Dr. R. Arana-Iniquez, Convencion 1287, Montevideo, Uruguay, S. A.

LATIN AMERICAN NEUROSURGICAL CONGRESS, Montevideo, Uruguay, S.A., March 21-24. For information write: Dr. R. Arana-Iniquez, Convencion 1287, Montevideo, Uruguay, S. A.

MIDDLE EAST MEDICAL ASSEMBLY, Campus of American University of Beirut, Beirut, Lebanon, April 22-24. Dr. John L. Wilson, American University of Beirut, Beirut, Lebanon, Chairman.

NATIONAL CONGRESS OF TUBERCULOSIS AND SILICOSIS, Mexico, D. F., Mexico, Jan. 23-29. Dr. Jose Nava Gonzalez, Balderas 32-312, Ap. Postal 7267, Mexico, D. F., Mexico, Secretary General.

NEURORADIOLOGIC SYMPOSIUM, London, England, Sept. 13-17. Dr. R. D. Hoare, National Hospital, Queen Square, London, W.C.1, England, Secretary.

PAN-AMERICAN ACADEMY OF GENERAL PRACTICE, Lima, Peru, S. A., Feb. 11-25. Dr. Arturo Martinez, 54 East 72nd St., New York 21, N. Y., U. S. A., Secretary.

WORLD MEDICAL ASSOCIATION, Vienna, Austria, Sept. 20-26. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 21-23. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery 4.

ARIZONA:* *Examination and Reciprocity.* Phoenix, Jan. 12-14 and April 13-15. Ex. Sec., Mr. Robert Carpenter, 401 Security Bldg., Phoenix.

ARKANSAS:* *Examination.* Little Rock, June 9-10. Sec., Dr. Joe Verser, Harrisburg.

COLORADO:* *Examination.* Denver, June 14-15. *Reciprocity.* Denver, Jan. 11. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

CONNECTICUT:* *Examination.* Hartford, Mar. 8-9. Sec. to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic. Examination and Reciprocity.* Derby, March 8-9. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: *Examination and Reciprocity.* Dover, Jan. 11-13. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA:* *Examination.* Jacksonville, June 26-28. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami.

GEORGIA: *Examination and Reciprocity.* Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

IDAHO: *Examination and Endorsement.* Boise, Jan. 10-12. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

ILLINOIS: *Examination and Reciprocity.* Chicago, Jan. 25-27. Supt. of Regis., Mr. Fredric B. Selcke, Capitol Bldg., Springfield.

INDIANA: *Examination.* Indianapolis, June 21-23. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Building, Indianapolis.

MAINE: *Examination and Reciprocity.* Portland, Mar. 8-9. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: *Examination.* Boston, Jan. 18-21. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston.

MICHIGAN:* *Examination.* Ann Arbor and Detroit, June 15-17 (tentative). Sec., Dr. J. Earl McIntyre, 118 Stevens T. Mason Bldg., Lansing 8.

MINNESOTA:* *Examination and Reciprocity.* Minneapolis, Jan. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSOURI: *Examination.* Jefferson City, Feb. 17-18. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Box 4, Jefferson City.

NEBRASKA:* *Examination.* Omaha, June. Director, Bureau of Examining Boards, Mr. Husted K. Watson, State Capitol Bldg., Room 1009, Lincoln 9.

NEW HAMPSHIRE: *Examination and Reciprocity.* Concord, Mar. 9. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW MEXICO:* *Examination and Reciprocity.* Santa Fe, Apr. 11-12. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

NEW YORK: *Examination.* New York City, Albany, Buffalo, and Syracuse, Feb. 15-18. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany 7.

NORTH CAROLINA: *Reciprocity and Endorsement.* Winston-Salem, Jan. 10. Sec., Dr. Joseph J. Combs, Professional Bldg., Raleigh.

OKLAHOMA:* *Examination.* Oklahoma City, June 7-8. Sec., Dr. C. Gallagher, 813 Braniff Bldg., Oklahoma City.

PENNSYLVANIA: *Examination.* Philadelphia, January. Acting Sec., Mrs. Marguerite B. Steiner, Box 911, Harrisburg.

SOUTH DAKOTA:* *Examination and Reciprocity.* Sioux Falls, Jan. 18-19. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

UTAH: *Reciprocity.* Salt Lake City, Feb. 15. *Examination.* Salt Lake City, July. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City.

VERMONT: *Examination and Endorsement.* Burlington, Jan. 27-29. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON:* *Examination and Reciprocity.* Seattle, Jan. 10-12. Sec., Mr. Edward C. Dohm, Olympia.

WEST VIRGINIA: *Examination and Reciprocity.* Charleston, Jan. 10. Sec., Dr. Newman H. Dyer, State Office Bldg. No. 3, Charleston 5.

WISCONSIN:* *Examination and Reciprocity.* Madison, Jan. 11-13. Sec., Dr. Thomas W. Tormey Jr., Room 1140, State Office Bldg., Madison 2.

WYOMING: *Examination and Reciprocity.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

ALASKA:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. Benedict Cooper, Agana.

HAWAII: *Examination.* Honolulu, Jan. 10-13. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS: *Examination.* Little Rock, May 3-4. Sec., Mr. S. C. Dellinger, Zoology Dept., University of Arkansas, Fayetteville.

COLORADO: *Examination and Reciprocity.* Lincoln and Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: *Examination.* New Haven, Feb. 12. Address: State Board of Healing Arts, 258 Bradley St., New Haven 10.

FLORIDA: *Examination.* Miami and Gainesville, May 14. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

IOWA: *Examination and Reciprocity.* Des Moines, Jan. 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination and Reciprocity.* Detroit and Ann Arbor, Feb. 11-12. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

NEBRASKA: *Examination and Reciprocity.* Omaha, Jan. 11-12. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

NEW MEXICO: *Examination and Reciprocity.* Santa Fe, Jan. 16. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

OKLAHOMA: Oklahoma City, April 7-8. Sec., Dr. C. Gallagher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, March 5, June 4, Sept. 10, and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination.* Providence, Feb. 9. Admin. of Prof. Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TEXAS: *Examination and Reciprocity.* Austin and other locations, April. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

WISCONSIN: *Examination.* Madison, March 12, and Milwaukee, May 14. Sec., Mr. William H. Barger, 621 Ransom St., Ripon.

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

MAGAZINES

U. S. News & World Report, Dec. 24, 1954

"Special Report: What It Costs People to Be Sick"

Quoting figures "based on the latest study of the Social Security Administration, brought current through estimates by the Economic Unit of U. S. News & World Report," this special report points out some favorable information on doctors' fees. "Physicians' fees used to account for 30 per cent of the out-of-pocket cost; now they are 29 per cent. . . . These fees tend to stay fairly constant for periods of years. The last big jump came during World War II. Today many physicians are charging the same for office calls and sickroom visits as they did shortly after the war." The report says medical care is costing people a total of 12.4 billion dollars a year, of which 2.1 billion is met through health insurance.

Life, Dec. 27, 1954

"A Victim of Progress: Sanatorium Closes on Optimistic Note"

Picture story on the closing of Trudeau Sanatorium, "a victim of the times and its own research." The article credits the cut of tuberculosis death rate by 75% in the last 10 years to devices like mobile x-ray units that help detect the disease in its early stages and new treatments like "streptomycin, isoniazid pills, PAS powder."

Lifetime Living, January, 1955

"Progress Report on Cancer," by Walter Ross

Opening with a sound warning against cancer quacks, the article reports on new tests to locate cancer early and treatment by chemotherapy, x-ray, and surgery and notes that even when cure is not possible medical science is now able to prolong life.

Cosmopolitan, January, 1955

"They've Done the Most for Your Child," by William Peters

The author describes activities at Children's Hospital of Philadelphia, calling it "one of the nation's most important centers of treatment, training, and research" and concluding that no matter where you live "achievements in children's medicine made there over the years are almost sure to have reached into your life and the lives of your children."

DEATHS

Thompson, Lewis Ryers ⊕ Assistant Surgeon General, U. S. Public Health Service, retired, Chevy Chase, Md., died in the Public Health Service Hospital in Baltimore Nov. 12, aged 71, of exsanguination due to bleeding gastric ulcer and pulmonary emphysema. Dr. Thompson was born in Lafayette, Ind., Aug. 6, 1883, and received his medical degree from Louisville (Ky.) Medical College in 1905. His first professional position was as a member of the Philippine Constabulary from 1906 to 1909. In 1910, he was commissioned assistant surgeon in the U. S. Public Health Service and ordered to the Chicago Marine Hospital, where he served until 1913. He was transferred to Cincinnati to serve with Dr. Wade Hampton Frost in studies on the pollution of the Ohio River. He also collaborated with Dr. Frost in an investigation of the large epidemic of poliomyelitis in 1916. In June, 1917, he was detailed principal assistant to the director of health of the Philippine Islands, succeeding to the post of chief quarantine officer two years later. In April, 1921, he became the first chief of the newly established office of Industrial Hygiene Investigations in the Division of Scientific Research. In 1930, Dr. Thompson became assistant surgeon general in charge of the division of scientific research, a position he held for many years. From 1943 until his retirement Nov. 1, 1946, he was associate chief and chief of the Bureau of State Services. Among the most notable of his achievements was the organization of the National Institutes of Health, of which he was director from 1937 to 1942. He was one of the medical directors and chief of the medical division of the U. S. Strategic Bombing Survey in Japan in 1945 and 1946. From 1932 to 1934 Dr. Thompson served as scientific director of the International Health Division, Rockefeller Foundation. He was a member of the House of Delegates of the American Medical Association from 1932 through 1935, a member of the Division of Medical Sciences of the National Research Council, a member of the American Public Health Association, and a fellow of the American College of Dentists. Dr. Thompson was Gilman Thompson lecturer at Cornell University in New York City and De Lamar lecturer at Johns Hopkins University in Baltimore.

Glickman, Alfred Myron ⊕ Springfield, Mass.; born in Springfield Aug. 22, 1898; Tufts College Medical School, Boston, 1921; member of the New England Obstetrical and Gynecological Society, Phi Delta Epsilon medical fraternity, and the Association of Military Surgeons of the United States; charter member of the International College of Surgeons; fellow of the American College of Surgeons; veteran of World War I; served in the U. S. Naval Reserve during World War II and was commended for his service as medical officer of a naval construction brigade during the Okinawa campaign from December, 1944, to October, 1945; for many years associated with the Boy Scouts of America; surgeon to the Jewish War Veterans Post; for 16 years member of the school board; on the staffs of the Health Department Hospital, Springfield Hospital, and Wesson Memorial Hospital in Springfield, of Wing Memorial Hospital in Palmer, and of Ludlow (Mass.) Hospital; a member of the board of governors of the Yonkers Home for the Aged; died Nov. 1, aged 56, of coronary occlusion.

Stauffer, Frederick Leaver ⊕ Salt Lake City; Columbia University College of Physicians and Surgeons, New York, 1918; specialist certified by the American Board of Otolaryngology; assistant clinical professor of surgery (otolaryngology) at the University of Utah School of Medicine; member and past president of the Inter-Mountain Oto-Ophthalmological Society; a member and past vice-president of the Pacific Coast Oto-Ophthalmological Society; member of the American Academy of Ophthalmology and Otolaryngology; for many years on the staff of the Primary Children's Hospital; member and past president of the medical staff of W. H. Groves Latter-Day Saints Hospital, where he died Nov. 10, aged 61.

⊕ Indicates Member of the American Medical Association.

Cerri, Nicola, Cleveland; born in Avezzano, Italy, March 30, 1875; Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia, Italy, 1898; in 1902 one of the founders of the Cleveland Academy of Medicine; Italian Consul for many years; became an American citizen in 1929; in 1937 appointed by President Roosevelt U. S. Commissioner General for the Great Lakes Exposition (in charge of all federal exhibits); in 1921 King Victor Emmanuel proclaimed him a Knight Commander of the Order of the Crown of Italy; received the Italian Red Cross silver medal for work in World War I; died in Washington, D. C., Nov. 4, aged 79, of cerebrovascular accident.

Berardinelli, Carmine Gerade ⊕ Newark, N. J.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1901; past president of the Essex County Anatomical and Pathological Society; member of the Association of Military Surgeons of the United States; served overseas during World War I and in 1919 was deputy chief surgeon for the Army in Rome; for many years first assistant medical examiner for Essex County; from 1920 to 1933 medical examiner of the Veterans Bureau Administration; a director of the Columbus Trust Company; died Nov. 8, aged 78, of carcinoma of the omentum.

Goldsmith, William Stokes ⊕ Stone Mountain, Ga.; born in Rome, Ga., in 1870; Atlanta Medical College, 1892; professor emeritus of clinical surgery at his alma mater, now the Emory University School of Medicine; past president of the Medical Association of Georgia and the Fulton County Medical Society; member of the Southern Surgical Association; fellow of the American College of Surgeons; on the staffs of the St. Joseph's Infirmary, Grady Hospital, and the Emory University Hospital, Atlanta, where he died Oct. 23, aged 84, of arteriosclerotic heart disease.

Bates, Robley Dunglison Sr. ⊕ Newtown, Va.; Medical College of Virginia, Richmond, 1906; past president of the Medical Society of Virginia and formerly councilor of its First District; past president of the Mid-Tidewater Medical Association; for many years member of the state board of medical examiners; president, Bank of Essex, Tappahannock; died Oct. 22, aged 77, of pulmonary embolism.

Betzner, Clarence Wilford ⊕ Cincinnati; University of Cincinnati College of Medicine, 1915; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons, of which he was a life member; served during World War I; on the staffs of the Cincinnati General Hospital, Bethesda Hospital, Deaconess Hospital, and the Jewish Hospital, where he died Nov. 13, aged 69, of arteriosclerotic heart disease and cerebral thrombosis.

Billingsley, Charles L., Ash Flat, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1919; died in Batesville Aug. 4, aged 69, of pneumonia and heart disease.

Billman, Gustus Swithin ⊕ Shelbyville, Ind.; Medical College of Indiana, Indianapolis, 1895; died Sept. 29, aged 82, of coronary thrombosis.

Bishkow, I. Edward ⊕ Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; fellow of the American College of Surgeons; interned at Michael Reese Hospital in Chicago; for many years practiced in Chicago, where he was on the faculty of the Chicago Medical School and on the staffs of the Mount Sinai and Edgewater hospitals; on the staffs of the Midway and Temple hospitals; died Oct. 12, aged 66, of hemorrhage from esophageal varices and cirrhosis of the liver.

Boney, Elwood Rantz ⊕ Kinston, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1926; served during World War II; died in the Hospital of the University of Pennsylvania in Philadelphia Oct. 28, aged 56, of carcinoma of the lung.

Boykin, Robert Berlie, Mize, Miss.; Memphis (Tenn.) Hospital Medical College, 1903; died in the Baptist Hospital, Jackson, Nov. 22, aged 77.

Bryan, Giles Sanford ✠ Amory, Miss.; Memphis (Tenn.) Hospital Medical College, 1888; an Associate Fellow of the American Medical Association; past president of the Mississippi State Medical Association and the Monroe County Medical Society; formerly member of the state board of health, of which he was president from 1912 to 1914; died Nov. 6, aged 91.

Burroughs, William Franklin, Jesup, Ga.; University of Georgia School of Medicine, Augusta, 1945; served during World War II; on the staff of the Leaphart Hospital; died Nov. 9, aged 33, of coronary disease.

Cantle, Herbert Cuthbert ✠ Cropsey, Ill.; University of Vermont College of Medicine, Burlington, 1903; died Oct. 13, aged 74, of a heart attack.

Cecil, Howard Lee ✠ Senior Surgeon, U. S. Public Health Service, reserve, Hot Springs National Park, Ark.; Johns Hopkins University School of Medicine, Baltimore, 1913; interned at the Johns Hopkins Hospital in Baltimore, where from 1915 to 1917 he was resident urologist; served in France during World War I; for many years associated with the U. S. Public Health Service; member of the American Urological Association; died Nov. 12, aged 66, of cancer of the pancreas.

Chapnick, Maurice Max ✠ Paterson, N. J.; Tufts College Medical School, Boston, 1921; served during World War I; on the courtesy staffs of the Paterson General Hospital, St. Joseph's Hospital, and the Barnert Memorial Hospital, where he died Nov. 8, aged 58, of cerebral thrombosis and hypertension.

Chavannes, Virginia Cecile ✠ Culver City, Calif.; University of Tennessee College of Medicine, Memphis, 1931; member of the American Academy of General Practice; died Oct. 27, aged 45.

Cowles, Edward Spencer ✠ New York City; University College of Medicine, 1907; author of several books on psychiatric subjects; died Nov. 16, aged 75, of a heart attack.

Davis, David Benjamin ✠ Dallas, Texas; Louisville (Ky.) Medical College, 1898; served during World War I; died in Methodist Hospital Oct. 24, aged 78, of hypertension and congestive heart failure.

Diamond, Ralph ✠ Cortland, N. Y.; University of Western Ontario Faculty of Medicine, London, Ontario, Canada, 1940; died in Elgin General Hospital in St. Thomas, Ontario, Canada, Aug. 3, aged 46, of coronary thrombosis.

Doepp, Edward A. ✠ Blue Island, Ill.; College of Physicians and Surgeons of Chicago, 1890; instrumental in founding the St. Francis Hospital, where he died Nov. 27, aged 88, of arteriosclerosis.

Donald, Homer ✠ Dallas, Texas; born in Lewisville, Texas, March 14, 1886; University of Texas School of Medicine, Galveston, 1912; fellow of the American College of Physicians; past president of the Dallas County Medical Society; consultant in internal medicine at Southwestern Medical School of the University of Texas; formerly on the faculty of Baylor University College of Medicine; affiliated with the Methodist Hospital; senior partner of Physicians and Surgeons Clinic, an organization he helped found; died Oct. 20, aged 67, of coronary occlusion.

Dougherty, Leslie Dwight ✠ Cowden, Ill.; Loyola University School of Medicine, Chicago, 1917; died Nov. 21, aged 62, of coronary thrombosis.

DuCasse, Ralph R. ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1909; member of the American Academy of Dermatology and Syphilology; on the staffs of the Speers Memorial Hospital in Dayton, Ky., and of the Cincinnati General and Good Samaritan hospitals; died Oct. 30, aged 67.

Flewelling, Herbert Eldridge ✠ Peterborough, N. H.; Tufts College Medical School, Boston, 1941; an Associate of the American College of Physicians; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; served during World War II and was awarded the Bronze Star; on the staff of the Monadnock Community Hospital; died Nov. 13, aged 40.

Francis, Stanley D., Kansas City, Mo.; University of Western Ontario Faculty of Medicine, London, Ontario, Canada, 1895; died Aug. 20, aged 80.

Fredd, Harry ✠ Brooklyn; George Washington University School of Medicine, Washington, D. C., 1927; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians; on the staff of the Bushwick Hospital; died in Mount Sinai Hospital Nov. 12, aged 51, of leukemia.

Fullenwider, Allan Cameron ✠ Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; on the staffs of the Receiving and Mount Carmel Mercy hospitals; died Sept. 8, aged 68, of a coronary attack.

Gandara, Jose Nicolas, San Juan, Puerto Rico; Long Island College of Medicine, Brooklyn, 1933; clinical professor of medicine at the University of Puerto Rico School of Medicine, School of Tropical Medicine, where he was a trustee; member, superior educational council, University of Puerto Rico (Rio Piedras); fellow of the American College of Physicians; chairman of the Puerto Rico Housing Authority; attending physician, San Jose Hospital; died in the Hahnemann Hospital, Philadelphia, Oct. 12, aged 47, of coronary thrombosis.

Gehrken, Henry Stoeffel ✠ Orlando, Fla.; Medical College of Georgia, Augusta, 1909; member of the Medical Association of the State of Alabama; died Aug. 21, aged 67, of cerebral thrombosis.

Goode, J. Gates ✠ Cheriton, Va.; University College of Medicine, Richmond, 1899; county coroner; affiliated with Northampton-Accomack Memorial Hospital in Nassawadox; died Oct. 24, aged 78, of heart disease.

Graff, Isidor Aarron ✠ Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1933; on the staffs of Mount St. Mary's Hospital and the Niagara Falls Memorial Hospital; died in Edward J. Meyer Memorial Hospital, Buffalo, Sept. 20, aged 44, of malignant hypertension.

Halfacre, Romeo Rupert, Hattiesburg, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1919; at one time head of the State Colony for the Feebleminded at Ellisville; served as assistant superintendent of the state asylum in Jackson; died in Jackson Nov. 4, aged 72.

Harding, Herman Lee ✠ Liverpool, N. Y.; Syracuse University College of Medicine, 1932; served on the staff of St. Joseph's Hospital in Syracuse; died Oct. 2, aged 59, of coronary thrombosis.

Johnson, Andrew B., Columbia, S. C.; Meharry Medical College, Nashville, Tenn., 1912; on the staff of the Good Samaritan-Waverley Hospital; died Nov. 9, aged 69.

Johnson, Herbert Clifford ✠ Perrysville, Ohio; Ohio State University College of Medicine, Columbus, 1937; served during World War II; died in Memorial Hospital, Mount Vernon, Sept. 10, aged 48.

Johnson, Walter Morgan ✠ Ardmore, Okla.; Barnes Medical College, St. Louis, 1900; died in Veterans Administration Hospital, McKinney, Texas, Sept. 14, aged 77.

Kesling, Otho Granville ✠ Arlington, Wash.; Jefferson Medical College of Philadelphia, 1912; member of the American Academy of General Practice; fellow of the American College of Surgeons; served as mayor; affiliated with General and Providence hospitals in Everett and with Arlington General Hospital; died in the Royal Jubilee Hospital in Victoria, British Columbia, Canada, Oct. 30, aged 65, of a heart attack.

Lescher, Edwin Russell ✠ Elgin, Ill.; Jefferson Medical College of Philadelphia, 1908; served with the American Red Cross overseas during World War I; on the staffs of St. Joseph Hospital, Elgin State Hospital, and the Sherman Hospital, where he died Nov. 9, aged 72, of carcinoma of the lung.

Liebeler, Wilbert Ashton ✠ Grand Forks, N. D.; University of Illinois College of Medicine, Chicago, 1925; clinical professor of minor surgery at the University of North Dakota School of Medicine; fellow of the American College of Surgeons and the International College of Surgeons; served as president and vice-president of the North Dakota State Medical Association; on the staffs of the Deaconess and St. Michael's hospitals; died Sept. 22, aged 57, of coronary occlusion.

Lukemeyer, Louis Charles ✠ Huntingburg, Ind.; Rush Medical College, Chicago, 1894; died Oct. 4, aged 86, of cerebral hemorrhage.

McCauley, Frank ✠ Portland, Ore.; University of Oregon Medical School, Portland, 1910; served during World War I; died Nov. 8, aged 68.

McCauley, Joshua J., Starkville, Miss.; St. Louis College of Physicians and Surgeons, 1919; died Nov. 3, aged 74.

Olmsted, William Roy ✠ Detroit; Western University Faculty of Medicine, London, Ontario, Canada, 1903; fellow of the American College of Surgeons; at one time on the faculty of Loyola University School of Medicine in Chicago; since 1917 on the staff of the Grace Hospital; died in the University Hospital, Ann Arbor, Oct. 9, aged 73.

Patrick, William Forest ✠ Portland, Ore.; Kentucky School of Medicine, Louisville, 1908; on the staff of the Emanuel Hospital; died Nov. 12, aged 73, of coronary thrombosis.

Polhemus, Gretchen Irene ✠ New Albany, Ind.; Indiana University School of Medicine, Indianapolis, 1935; on the staffs of the Memorial Hospital and St. Edward's Hospital, where she died Oct. 6, aged 50, of cancer of the liver.

Powell, William Leven ✠ Roanoke, Va.; University of Virginia Department of Medicine, Charlottesville, 1900; member of the American Academy of General Practice; first president of the Virginia Academy of General Practice; past president and vice-president of the Medical Society of Virginia; served during World War I; superintendent, several times chief of staff, and one of the organizers of the outpatient department of the Roanoke Hospital, now known as the Memorial and Crippled Children's Hospital, where he died Oct. 22, aged 78.

Rood, Dana Chapman ✠ Santa Barbara, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886; formerly practiced in Duluth, Minn.; member of the Minnesota State Medical Association; died Oct. 6, aged 90, of massive pulmonary embolism and valvular heart disease.

Shacter, Joseph Andrew ✠ Chicago; University of Illinois College of Medicine, Chicago, 1919; member of the American Psychosomatic Society and the International College of Surgeons; associate in surgery at Northwestern University Medical School; on the staff of the Wesley Memorial Hospital, where he died Nov. 25, aged 59.

Shanor, Harold Aaron Ralph ✠ Sewickley, Pa.; University of Pittsburgh School of Medicine, 1926; fellow of the American College of Surgeons; served during World War II; for many years physician for the University of Pittsburgh football teams; on the staff of Sewickley Valley Hospital, where he died Nov. 5, aged 56, of intestinal obstruction from carcinoma of the ascending colon.

Simmons, Maynard James, Washington, D. C.; Columbian University Medical Department, Washington, 1903; served overseas during World War I; from 1921 to 1924 was associated with the U. S. Public Health Service; for many years United States pension examiner; at various times medical director and owner of sanitariums in Hyattsville, Md., Bethesda, Md., and Washington, D. C.; died Oct. 14, aged 80, of cerebral hemorrhage.

Simons, Sidney Morton ✠ Arlington, Mass.; Tufts College Medical School, Boston, 1924; served during World Wars I and II; chief anesthetist at Symmes Arlington Hospital; on the staff of the Boston City Hospital, where he died Oct. 8, aged 54.

Simpson, John Arthur ✠ Washington, D. C.; Georgetown University School of Medicine, Washington, 1933; formerly assistant professor of parasitology and pathology at his alma mater; on the staffs of the Providence and Georgetown hospitals; died Oct. 26, aged 49, of coronary disease.

Slaughter, Joseph Hampton, Bogalusa, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; fellow of the American College of Surgeons; served as commissioner of public health and safety for many years; on the staff of Elizabeth Sullivan Memorial Hospital; killed Oct. 31, aged 73, in an automobile accident.

Slavit, Joseph, Brooklyn; Cornell University Medical College, New York, 1904; specialist certified by the American Board of Internal Medicine; on the staffs of the Beth Moses and Maimonides hospitals; died Nov. 15, aged 71, of coronary arteriosclerosis.

Smith, Edgar Noel ✠ The Dalles, Ore.; University of Oregon Medical School, Portland, 1933; member of the American Academy of General Practice; served as director of the Wasco-Sherman County Health Department; on the staff of the Dalles Hospital; died Oct. 26, aged 46, of acute coronary disease.

Smith, Ralph Nichol ✠ Los Angeles; the Hahnemann Medical College and Hospital, Chicago, 1903; fellow of the American College of Surgeons; chief surgeon at Hollywood Presbyterian Hospital; died Oct. 20, aged 77, of infected hydronephrosis and acute hepatitis.

Spain, Kate Connell ✠ St. Louis; St. Louis College of Physicians and Surgeons, 1895; an Associate Fellow of the American Medical Association; died in St. Vincent's Hospital Sept. 18, aged 88.

Spitler, Homer Amos ✠ Middleburg, Va.; University College of Medicine, Richmond, 1903; mayor of Middleburg; on the staff of the Loudoun County Hospital; member of the board of directors of the Loudoun Hospital; a director of the Middleburg National Bank; died Oct. 15, aged 75, of pneumonia.

Stewart, Edwin Poe, Detroit; Meharry Medical College, Nashville, Tenn., 1929; died in the Receiving Hospital Nov. 5, aged 57, of acute hepatitis.

Storrs, Berton Wendall ✠ Portsmouth, R. I.; University of Maryland School of Medicine, Baltimore, 1902; died in Malone Sept. 30, aged 80, of coronary embolism.

Swift, Harry Paul, New York City; Bellevue Hospital Medical College, New York, 1896; for many years member of the board of health; served as chairman of the board of trustees of Hunter College and as member of the board of higher education; died Oct. 16, aged 82.

Swisher, Kyle Young ✠ Fairview, W. Va.; Jefferson Medical College of Philadelphia, 1921; died in the University Hospital, Baltimore, Oct. 13, aged 60, of coronary thrombosis.

Sykes, Walter Morris ✠ Waco, Texas; University of the South Medical Department, Sewanee, Tenn., 1903; served during World War I; died Oct. 3, aged 74, of cerebral thrombosis.

Tarbox, Byron Roscoe ✠ Warmsprings, Mont.; McGill University Faculty of Medicine, Montreal, Canada, 1932; member of the state board of medical examiners; died in Montana State Hospital Oct. 5, aged 51.

Trice, Daniel Hall ✠ Boligee, Ala.; Louisville (Ky.) Medical College, 1903; died in Druid City Hospital, Tuscaloosa, Nov. 12, aged 82, of congestive heart disease.

Tynan, James Joseph, Stratford, Conn.; College of Physicians and Surgeons, Baltimore, 1907; died Sept. 19, aged 69.

Walsh, John Graney, Woodbine, Iowa; State University of Iowa College of Medicine, Iowa City, 1907; on the staff of the Mercy Hospital in Council Bluffs; died in Council Bluffs Nov. 13, aged 73, of lymphatic leukemia.

Wright, George A. ✠ Marion, Va.; University College of Medicine, Richmond, 1904; member of the International College of Surgeons; past president of the Southwest Virginia Medical Society; formerly superintendent of the Southwestern State Hospital; past president of the Lee Memorial Hospital, where he died Oct. 28, aged 73.

Yoder, Harvey Elmer, Cleveland; Western Reserve University Medical Department, Cleveland, 1904; died in the Lutheran Hospital Nov. 8, aged 77, of arteriosclerotic cardiovascular disease.

Zovickian, Hovhannes ✠ Watertown, Mass.; Harvard Medical School, Boston, 1917; for many years school physician; on the staff of the Mount Auburn Hospital in Cambridge; died in the Massachusetts General Hospital, Baker Memorial, Boston, Oct. 10, aged 69, of heart block.

FOREIGN LETTERS

CHILE

Pan-American Sanitary Conference.—At the Pan-American Sanitary Conference held in Santiago in October, Prof. W. Coutts and his co-workers reported that the venereal disease control campaign in Chile might be divided into three periods according to the treatment used. In the first arsphenamine was given and the patient was hospitalized. This was followed by a period of outpatient treatment with neoarsphenamine. During this time no effort was made to locate sources of contagion or possible contacts. Although there was a decrease in morbidity rates during this period in some of the more populous centers, the rates were not satisfactory. Beginning in 1927 there was an increase in the number of treatment centers of the Health Service and the Workers' Insurance Service. Medical "control" of prostitutes, abolished in 1925, was resumed. The initiation of mass treatment methods brought about the first success in the campaign against syphilis. Centers for mass therapy were established in Santiago, Valparaiso, and Concepción. In March, 1943 a National Antivenereal Campaign Committee was created and uniform treatment patterns were outlined with a view to eliminating the existing confusion. An epidemiological program was inaugurated to locate the sources of contagion and the contacts. The third period started in 1948 with the rapid treatment of syphilitic patients with penicillin. Contacts when located are treated as having primary syphilis and all persons with genital ulcerations showing negative ultramicroscopic smears immediately receive 1,500,000 units of penicillin. The number of cases of primary syphilis in Chile in 1945 was 3,905 and of secondary syphilis, 4,800. By 1953 the number had dropped to 1,600 primary and 1,300 secondary cases. In 1950, of 20,000 serologic tests 7.9% and in 1953 of 18,000 tests only 3.7% were positive. The authors warn against relaxation of efforts in case finding and treatment.

Anopheles Control.—At the same meeting Prof. A. Neghme and his co-workers reported that the malarial zone in Chile was formerly confined to the province of Tarapaca. An antimalarial campaign was started in 1937 in the city of Arica, extending first to the nearby valley of Azapa and in 1941 to the rest of the province. The only species of Anopheles found in this area was A. pseudopunctipennis. Until July, 1944, the control methods used were chiefly antilarval and consisted of such measures as weekly oiling of breeding places, drainage of marshy lands, and filling of stagnant pools. Irrigation canals were constructed in some areas. Gambusia affinis, a surface feeding minnow, was widely distributed in all collections of water. With the introduction of chlorophenothane (DDT) primary importance was given to the campaign against adult mosquitoes. In the beginning doses of 0.1 gm. of chlorophenothane per square meter of surface were applied in house spraying. The concentration was gradually increased up to 2 gm. per square meter. At first each region received four applications a year, then two, and finally one as the concentration of chlorophenothane increased. In 1945 and 1946 aqueous chlorophenothane sprays were applied to domestic animals. These applications were made at intervals of about two months. An Anopheles surveillance service, which makes periodic captures of larvae, nymphs, and adult mosquitoes has been established. Antimalarial posts have gradually been reduced in numbers and the activities of others directed toward other public health problems. Since the fall of 1948 no adult A. pseudopunctipennis have been captured in the malarial zone of Chile, but at the end of the annual summer high-water period some larva-nymph foci have been discovered in the valleys nearest Peru. In some areas no anopheline mosquitoes have been found for eight years. Some control measures will, however, have to be maintained for a long time, and agricultural work that facilitates the elimination of breeding places will have to be intensified.

The items in these letters are contributed by regular correspondents in the various foreign countries.

ENGLAND

Report on Prescribing.—The joint committee on prescribing was appointed in 1949 by the Central and Scottish Health Services Councils "to consider and report from time to time whether it is desirable and practicable to restrict or discourage the prescribing by practitioners giving general medical services under the National Health Service Acts of 1946 and 1947 of (i) drugs and medicines of doubtful value or of unethical character; (ii) unnecessarily expensive brands of standard drugs." The committee was made up of 14 physicians and 4 pharmacists; at its first meeting it decided to send a letter to all physicians in the National Health Service, referring to the high cost of the pharmaceutical services, particularly that caused by prescribing expensive brands of proprietary drugs, and asking for the cooperation of the profession to prevent excessive prescribing.

In 1950 the committee published a report setting forth the principle that there should be no absolute restriction on the prescribing by a general practitioner of any drug that in his opinion was necessary for the treatment of his patients. Accordingly, whatever recommendation the committee might make in relation to particular preparations, a physician would still be at liberty to prescribe whatever drugs he thought necessary, though he might have to justify his action before the local medical committee if the cost of his prescribing appeared to be excessive. The committee recommended that preparations advertized directly to the public should not be prescribed by physicians, because the responsibility for prescribing should rest solely with the practitioner. Physicians were supplied with lists of preparations so advertised. The committee agreed that all drugs and preparations described in the British Pharmacopoeia, the British Pharmaceutical Codex, and the National Formulary should be freely prescribable.

A preliminary study of some 50 proprietary preparations led the committee to classify proprietary preparations as follows: (1) new drugs of proved value not yet standard; (2) proprietary brands of standard drugs, singly or in combination; (3) standard preparations and new remedies of proved value, in elegant form or vehicle; (4) qualitative and/or quantitative modifications in the composition or combination of standard preparations or new remedies of proved value that are not accepted as therapeutically superior to preparations included either alone or in combination in the British Pharmacopoeia, the British Pharmaceutical Codex, or the National Formulary; (5) preparations not in the British Pharmacopoeia, British Pharmaceutical Codex, or National Formulary, which in the committee's view have not been proved of therapeutic value; and (6) preparations that are a combination of types 4 and 5.

Apart from preparations in categories 5 and 6, the committee considered that they had no reason for suggesting on medical grounds that these proprietary preparations should not be freely prescribable in the National Health Service, except when advertized directly to the public. The objection to many of them was that a standard drug of reputed analogous therapeutic effect could be prescribed at less cost, but the committee did not believe that they were competent to advise on this question of cost. It was therefore recommended that proprietary preparations in category 1 should be freely prescribable and that preparations in categories 2, 3, and 4, which were regarded as not therapeutically superior to standard preparations, should be prescribable subject to (1) their not being designated as foods, toilet preparations, or drugs for National Health Service purposes by the Definition of Drugs Joint Subcommittee; (2) their not being advertized directly to the public; and (3) satisfactory arrangements for price being made between the health departments and the manufacturers.

The committee then proceeded to the classification of some 5,000 proprietary preparations. In order to correct any misapprehension that may have arisen about their work, the com-

mittee stressed that all classifications were based on disclosed formulas and, if appropriate, the relationship to standard preparations. The classification of a preparation did not imply that the committee necessarily concurred with the manufacturer's claims for its therapeutic value. The classification of a preparation in category 5 did not imply that the preparation had no therapeutic value but rather that the evidence available to the committee did not justify its use as a therapeutic agent. Such a preparation could be reviewed and reclassified at any time. The same considerations applied to preparations in category 6, insofar as they contained drugs that in the committee's view had not been proved to be of therapeutic value. No preparation was placed in category 5 solely on the grounds that it had toxic side-effects. These hazards occurred in varying degree and frequency in many standard preparations and in many that were included in categories 1 to 4.

This committee, having made its final report, has been dissolved and replaced by a much smaller Standing Joint Committee on Classification of Proprietary Preparations. This committee has only 10 members and will be concerned solely with the classification of new proprietary preparations as they are produced or with reviews of previously classified preparations should further evidence be produced for or against them.

A Clean Air Act.—The Committee on Air Pollution was appointed in 1953 to examine the nature, causes, and effects of air pollution and the efficacy of present preventive measures; to consider what further preventive measures are practicable; and to make recommendations. The committee's report can be epitomized in the following quotation: "Air pollution on the scale with which we are familiar in this country today is a social and economic evil which should no longer be tolerated, and . . . it needs to be combated with the same conviction and energy as were applied one hundred years ago in securing pure water. . . . The objective of our recommendations is that by the end of ten to fifteen years the total smoke in all heavily populated areas would be reduced by something of the order of 80 per cent . . . we are recommending a Clean Air Act." There is a clear association between pollution and the incidence of bronchitis and other respiratory diseases. Figures are quoted showing that in 1951 the male death rates from bronchitis per 100,000 were 2.2 in Denmark, 5.5 in Norway, 5 in Sweden, and 107.9 in England and Wales. In the heavily polluted Clydeside area of Scotland in 1952, 11.7% of all male deaths were due to respiratory disease, compared to 7.5% in the rest of Scotland.

It is estimated that air pollution costs the nation about 700 million dollars a year in terms only of losses that can be given a monetary value. With a few exceptions, no industrial chimney need normally emit more than a light haze of smoke if the combusion arrangements are adequate and are properly operated. It is recommended that the emission of dark smoke be prohibited by law. Railway locomotives are responsible for over one-seventh of all the smoke discharged into the atmosphere. The switchover to diesel and electric locomotives should be made as quickly as possible, and after 1960 no coal-fired locomotives should be used for shunting, either on the railways or at industrial works in badly polluted areas. The contribution of exhaust gases from motor vehicles to the total volume of air pollution is still relatively small but can reach large proportions locally in congested areas. The present law on the subject is adequate to control this aspect of the problem if enforced.

Nearly half the smoke in the air comes from domestic chimneys. The only remedy for this is the replacement of house coal by smokeless fuels, electricity, or gas. Local authorities should require occupiers in new housing estates, as a condition of tenancy, to use only smokeless fuels in the appliances with which they are provided. In order to facilitate, in smokeless zones and smoke control areas, the replacement of older appliances in existing houses, it is recommended that a substantial contribution be made from public funds toward the cost of installing approved types of appliances in houses in these areas. In the first instance, this should take the form of an Exchequer grant not exceeding 42 million dollars to cover the next five years. It is further recommended that a "Clean Air Council" be established to coordinate and encourage research work and to view the progress made in implementing any new legislation.

A Scottish Health Center.—In May, 1953, the Secretary of State for Scotland opened in Edinburgh the Sighthill Health Center, the first health center to be built in Scotland. A report on the first 10 months of operation has now been published. Ten general practitioners in five firms provide a family physician service at the center. They share six consulting suites, each of which contain a consulting room, an examining room, and a waiting room. Each suite is fully furnished and equipped and rented at a cost of £300 per annum, including heat, light, cleaning, and nursing and clerical assistance. There are also rooms where dressings can be applied and minor surgical treatment given, a small laboratory, a physiotherapy department, a pharmacy, and a dental office. The center also provides the headquarters for the corporation's child welfare and school health and dental service for the area. Of the 16,700 patients on the lists of the physicians working in the center, about 11,000 live in the area served by it and are using the general medical services provided in the center. An around-the-clock emergency roster has been established among the center's physicians to deal with "emergencies" when the patients' own physicians are not available.

The dressing rooms are staffed through the Queen's Institute of District Nursing by two nurses to cover the hours 8:30 a. m. to 8:30 p. m., during which the physicians regularly see their patients. The institute also provides a nurse for one hour on Sunday afternoons to carry out any necessary dressings or injections and to be available for the physician who is on duty then. Emergency patients coming to the dressing rooms are, as a rule, given treatment initially by the nurse on duty and referred with a note to their own physicians. In the case of an emergency patient needing sutures, or for any other reason requiring urgent medical attention, one of the physicians on the duty roster will see the patient if the patient's own physician is not available. Injections are given in the dressing rooms to ambulant patients, whether or not they are patients of the center's physicians, and thus the district nursing services in the area are relieved of this task. There are three receptionists on the staff who also carry out routine laboratory tests. Clerical assistance consists of a shorthand typist and a clerk typist. The pharmaceutical service at the center is unique in that the pharmacist does not work on his own account but is an employee of the National Health Service Executive Council for Edinburgh. The service is open to the general public to have their National Health Service prescriptions dispensed in the pharmacy whether or not they are on the lists of the center's physicians. Prescriptions issued by the center's physicians may be taken for dispensing to any pharmacist and not necessarily to the center's pharmacy.

Medical Research in Scotland.—Under the National Health Service (Scotland) Act, 1947, a Scottish Hospital Endowments Committee was established to provide schemes for the future government and management of endowments that fell to boards of management with the establishment of the National Health Service. The total sum of these endowments was $36,400,000. In 1952 the commission proposed to the Secretary of State for Scotland that some part of this sum should be earmarked for medical research, and that could best be done if a central fund were established for the whole of Scotland. This proposal was accepted and incorporated in the Hospital Endowments (Scotland) Act, 1953, which established a Hospital Endowments Research Trust. Although the members are appointed by the Secretary of State, the trust is not under the control of any government department. The duty of the trust is to hold and administer funds on trust for the purpose of assisting the conduct of research into any matters relating to the causation, prevention, diagnosis, or treatment of illness or mental deficiency or to the development of medical or surgical appliances. For the present the trust proposes to take a special interest in investigations, clinical or experimental, that have a bearing on the care and treatment of patients. The trust's income will be derived primarily from a limited proportion of the endowments of the old voluntary hospitals. The capital sum that will ultimately be transferred to the trust from this source will be $8,400,000. This sum is expected to yield an annual income of $280,000. The trust also has power to accept and administer for medical research purposes funds from any source whatever.

Before giving financial assistance in any particular case, the trust, which is essentially a body of business men, is required to consult with the Advisory Committee on Medical Research. This committee was set up in 1950 by the Secretary of State to advise him and his successors on the discharge of his functions in regard to medical research under the National Health Service (Scotland) Act, 1947. In launching this new scheme, the fact that it is intended to supplement, not supplant, the monies already available for medical research in Scotland is stressed. The main sources of this income are the universities, the Medical Research Council, and the Department of Health for Scotland.

Intravenous Use of *p*-Aminosalicylic Acid.—Writing from the British Ministry of Health Swiss Treatment Center at Davos, J. Spencer Jones (*Brit. J. Tuberc.* **48:**285, 1954) records his experience with the intravenous administration of *p*-aminosalicylic acid (P. A. S.), which he has used on 1,145 occasions in 27 patients. A freshly prepared 4.8 to 5% solution of crystalline sodium *p*-aminosalicylic acid (24 to 25 gm. in 500 ml.) was used. This dose is equivalent to 17.5 to 18 gm. of *p*-aminosalicylic acid. The solution contained added potassium salts aimed at reducing the risk of hypokalemia, and the pH was adjusted to between 7.5 and 8. This solution, which was not isotonic, was subjected to cold sterilization with a Seitz filter. Transfusions were always given in the morning after a normal breakfast, and the time of administration varied from 2.5 to 3.5 hours, according to tolerance. A Record 8-12 needle was used, and the method of administration was the usual "drip" technique.

Only seven patients complained spontaneously of symptoms. These included two seriously ill patients in whom venous thrombosis developed, but in neither was there cause to stop using arm veins as the route of administration. Three patients complained of difficulty with adaptation of near vision near the end of each transfusion, but this soon passed; one of these complained of mild photophobia for about 30 minutes after the transfusion; two weeks after treatment was discontinued he was found to have an allergic keratoconjunctivitis, which responded to treatment. Another patient complained of neuralgic pain in the distribution of the right maxillary and mandibular divisions of the trigeminal nerve when the transfusion time was less than 3.5 hours. The seventh patient complained of fatigue. Granulopenia was observed in one patient whose absolute polymorphonuclear leukocyte count fell from 63 to 41%, with a corresponding increase in lymphocytes. Seventeen of the patients had previously taken *p*-aminosalicylic acid orally, and they expressed preference for the intravenous route. The author concludes that "the intravenous administration of P. A. S. should be tried when full dosage is not possible by mouth, since there is evidence that gastro-intestinal symptoms are minimized."

A Tuberculous Family.—D. van Zwanenberg reported (*Tubercle* **35:**250, 1954) a family in which postprimary tuberculosis developed in both parents and all nine children so far traced. True bronchogenic lesions developed in all except one child. The exceptional child had tuberculous peritonitis. Two brothers have not been traced. The infection was apparently introduced by the second child, a son born in 1918, who, having been a prisoner of war, returned home with pulmonary tuberculosis in November, 1945. He died in November, 1946. In March, 1947, his mother, who was born in 1898, was found to have pulmonary tuberculosis. She died in March, 1948. The eldest child, a daughter born in 1916, was found to have pulmonary tuberculosis in April, 1947. She made a good recovery following pneumonectomy. In May, 1947, the fourth child, a son born in 1923, was found to have the disease and died six months later. During 1947 the four youngest children were all found to be Mantoux positive. One of them had a healing primary lesion in the apex of his right lung and another had a large calcifying primary lesion. In November a son born in 1940 was found to have tuberculous peritonitis. In July, 1951, the father, who was born in 1882, was found to have an active lesion. In March, 1952, a son born in 1928 and a son born in 1933 were found to have infiltrations with cavitation that appeared to be recent in the right upper lung fields. In April, 1952, a daughter born in 1938 was found to have infiltration around the site of her previous primary lesion associated with two large cavities. In October, 1952, a daughter born in 1936 was found to have a rapidly spreading lesion in the right, upper, and middle lung fields. All four of these children had positive sputum, and they were still living with their father. The remaining child so far traced, a son born in 1921, was found in September, 1952. He then had bilateral calcification in the upper lung fields, with infiltration, but no activity was evident.

Private Hospital Enterprise.—Under the terms of the National Health Service Act, 1946, the Minister of Health was empowered to take over all private hospitals existing at that time. These included the 50-year-old Kingston and Malden Victoria Hospital in Surrey. In 1951, after a prolonged dispute that finally reached the House of Commons, the South-West Metropolitan Regional Hospital Board converted the hospital into a gynecologic unit and thus deprived the local residents and general practitioners of their only general-practitioner hospital. There is nothing in the National Health Service Act that removes the right of citizens to found new voluntary hospitals, and the Minister has no power to take over any new hospitals established by private initiative. The aggrieved local residents and general practitioners therefore formed the Kingston and Malden Victoria Medical Foundation to raise funds for a new hospital. At the annual meeting of the foundation it was announced that the sum of $32,480 had been collected and that $28,000 of this had been spent in buying a local house for conversion into a 20-bed hospital, containing three principal wards (for men, women, and children), an operating room, and nurses' quarters.

This conversion will cost another $28,000, and it was estimated that the operating cost would be $1,400 a bed per annum. Householders are contributing about 3 cents a week, and there are now 3,000 subscribers, bringing in an annual income of $5,600. It is hoped that the hospital will be opened in 1956. No charge will be made for treatment in the hospital. The conditions will be the same as under the National Health Service, and it is not proposed to take private patients. Should the inhabitants of Kingston be successful in their efforts, they will be responsible for the setting up of the first hospital by a private charity since the introduction of the National Health Service.

Identity Cards for Hemophiliacs.—In conjunction with the Ministry of Health and the Department of Health for Scotland, the Medical Research Council is preparing a card for issue to hemophiliac patients. The names of those to whom a card is issued will be filed centrally and will thus indirectly provide a register that is likely to prove of value not only to patients but also to research workers. Fourteen clinics and laboratories throughout the country will act as reference centers for applications to ensure that diagnostic standards are uniform, and hematologists in charge of these centers are among those forming the Medical Research Council's Hemophilia Committee. Any practitioner who has under his care a patient with hemophilia or one of the closely related diseases, and who wishes him to have a card, is asked to send full details to the nearest reference center. If the center considers the evidence incomplete, it may request the practitioner to ask the patient to come for further investigation, preferably as an outpatient. The center will inform the Medical Research Council of all proved cases of the disease and will issue the hemophilia card to patients through their physicians. The card contains a statement that the bearer has hemophilia and is under the supervision of a named physician and hospital. It goes on to say, "In case of injury, bleeding or serious illness this person may have special need of hospital care. The hospital named above or the nearest appropriate clinic should be able to advise on or facilitate admission if informed at once by telephone." The card also contains information about transfusion, blood grouping, and abnormal antibodies.

Death from Paraldehyde.—A 32-year-old man died in the hospital after administration of a dose of paraldehyde (*Pharmaceutical J.* **173:**376, 1954). He was suffering from pulmonary tuberculosis and was given 120 minims (7.5 cc.) of paraldehyde in an equal volume of water as a sedative. He spat it out immediately after taking it, complaining that it burned his throat. Postmortem examination revealed the presence of acute inflammation of the mouth, pharynx, larnyx, esophagus, and trachea, and acute bronchopneumonia, this last being the cause of death.

Analysis of the contents of the paraldehyde bottle showed that it contained 40% of acetic acid. The paraldehyde in question had been kept at room temperature for about four years in a half-empty bottle of clear glass. The pathologist who conducted the autopsy suggested that the fact that paraldehyde decomposed was known to pharmacists but unknown to many physicians and nurses. The British Pharmacopoeia specifies that it should be kept in a small, well-filled container, in complete darkness, and in a cool place. The addition of 0.01% weight-in-volume of an antioxidant is allowed. The U. S. Pharmacopeia is more precise, in that for this purpose it defines a "small container" as a bottle containing not more than 120 gm. The forensic chemist who gave evidence at the inquest recommended that paraldehyde should be checked for safety after a period of six months.

Confusion in the Nursery.—In the maternity department of a London hospital it was recently discovered that two mothers had been nursing the wrong babies. The mistake was discovered when one of the mothers was due for discharge. Both mothers were immediately informed, but each insisted that the baby whom she had been nursing was her own. Finally, with the consent of all four parents, the blood groups were determined. These showed conclusively that neither father nor mother could possibly be the parents of the child in their care but could be the parents of the other child. The decision as to what action should be taken was left to the parents, even though the hospital management committee was convinced that an exchange of babies had occurred. The fathers were inclined to agree with them, but both mothers refused to part with the infants they had been nursing. It was therefore finally decided not to exchange the babies for the time being. The method of identification used in this nursery is the widely used one of a name label being sewed around the baby's wrist at birth and another being pinned to the baby's cot. It is believed that the mistake in this case arose as a result of reliance being placed on the cot label instead of the wrist label.

Use of Trichloroethylene by Midwives.—The Central Midwives Board has accepted the recommendation of a committee of the Medical Research Council, originally set up in 1949, that midwives on their own responsibility should, after adequate instruction, be permitted to administer trichloroethylene with approved inhalers as an analgesic in childbirth. The Ministry of Health and the Central Midwives Board are arranging to implement the recommendation. An amendment of the rule of the board will be necessary, and special arrangements have to be made for the instruction of the midwives and for the testing of apparatus to ensure that it conforms to the specifications of the Medical Research Council. Some time must elapse before a supply of approved machines becomes available for the use of midwives.

Vital Statistics.—The latest report published by the Registrar General contains a new feature, a table showing the loss of years of life that can be assigned to the main causes of death. This shows that in 1953, in England and Wales, the expected years of life lost in the working-age period, 15 to 64 years of age, for every 10,000 men in the population were 112 due to cancer (35 for cancer of the lung), 104 due to heart disease (65 due to coronary disease), 93 due to bronchitis and pneumonia, 9 due to gastric and duodenal ulcer, and 90 due to accidents. The corresponding figures for women were 97 due to cancer (22 due to cancer of the breast), 54 due to heart disease (16 due to coronary disease), 54 due to bronchitis and pneumonia, 2 due to gastric and duodenal ulcer, and 26 due to accidents.

General Practitioner Hospitals.—In its report for the two years April, 1952, to March, 1954, the Luton and Hitchin Group Hospital Management Committee, which is responsible for the control of about 1,370 hospital beds in 17 institutions on the outskirts of north London, states that 47 of the 127 general practitioners in the area hold hospital appointments. There are three small general hospitals in the area that are staffed by general practitioners and a number of visiting consultants. Two of these hospitals have 30 beds each, and the third has 34. The number of inpatients discharged from these three hospitals was 1,642 in 1952 and 1,648 in 1953. The number of new outpatients was 3,225 in 1952 and 2,872 in 1953.

Dome-Shaped Operating Room.—The architect to the Birmingham Regional Hospital Board has just completed the prototype of an operating room that, it is claimed, eliminates the risk of infection more completely than any previous design. The room is dome shaped and has more than 100 portholes in the roof. These can be used for lighting projectors or as observation windows for students. There is provision for 82 projectors. Air conditioning and warming is maintained by a system whereby air is pumped in at the top forces the air already in the room to the floor, where it is drawn off by special vents.

Honor for Hospital Architects.—In view of the relatively few new hospitals that have been built in this country since 1939, it is of interest to note that the London architectural bronze medal, awarded annually for the best building of the year, has been awarded to Mr. A. H. Devereux and Mr. E. L. W. Davies. The building selected for the award was the outpatient department at St. James' Hospital in London.

FINLAND

Medical Training in Finland.—The medical faculties of the universities of Helsinki and Aabo are now in full operation, with about 100 new students every year in the former and about 50 in the latter. As it is exceptional for medical students to abandon their studies before qualifying as physicians, these figures are a fairly accurate index to the number of new physicians qualifying each year. At present there is one physician for every 1,825 inhabitants, but it is hoped that this ratio will in due course be improved till it reaches 1 per 1,000 or even less. At one time entries to the medical schools were unrestricted, the would-be medical student being required only to pass certain examinations, but of late the supply of medical students has exceeded the demand, and it has been found necessary to regulate the number of entries in order to avoid overcrowding the teaching centers. At one time would-be entrants to the medical profession had to pursue preliminary studies for one and one-half to two years before their acceptance or refusal was decided on. This meant that the rejected applicants might well have lost valuable time on studies of use mainly to physicians, so in 1945 a new system for sorting out would-be entrants came into force, with a preliminary course of only six weeks' duration, covering such subjects as chemistry, physics, and zoology. This system, which formed only part of the machinery for selecting suitable candidates, has been much criticized because it requires proficiency in subjects of no special importance to the work of a physician. Besides, passing the tests devised for this system might be greatly facilitated by private coaching in the art of passing examinations. On the other hand, it may be said in favor of this system that it enables a quick-witted applicant to satisfy his examiners when his school record may not have been good enough to do so. No psychological tests have been used in Finland in the selection of future physicians. In his review of the subject in *Nordisk medicin* for Nov. 4, 1954, Dr. Osmo Järvi of Aabo recommends that the medical student be brought to the patient's bedside earlier than is the case at present. In other words, he objects to drawing a rigid line between a student's preliminary studies and his later hospital training.

Infant Mortality.—Drs. Hilkka Tähkä and Niilo Hallman of the University Children's Hospital in Helsinki have studied the infant mortality in Finland before, during, and after World War II. In the prewar years it was fairly steady (about 6.85%). During World War II it increased at first and reached a peak of 8.83% in 1940. During the period 1941 to 1944 it remained at the prewar level, and in the relatively peaceful year of 1943 it fell below 5% for the first time. Legislation in 1944 providing for consultation centers and public health nurses stressed the importance of prenatal and postnatal welfare work, with the state paying 75% of the salary of these nurses, who were to be appointed at the rate of one for every 4,000 inhabitants. This ideal has not been fully realized, and there was still a shortage of such nurses in 1952. Since the war there has been a steady reduction in the infant mortality, which was down to 3.18% in 1952. This reduction has chiefly affected infants over

the age of one month, whereas the mortality among infants less than a week old has shown little change. The stillbirth rate has also remained fairly steady. The fall in the infant mortality as a whole was attributed to peacetime stabilization, infant welfare work, family allowances for children, home nursing activities, and the more effective care of illegitimate children. In 1952 nearly 80% of the infant population attended consultation centers, and at present nearly 90% of all pregnant women take advantage of the facilities available for maternity consultations. New hospital beds have been provided for children in different parts of Finland, and the use of antibiotics and chemotherapeutic remedies is also helping to reduce the infant mortality. In the last two years the infant mortality due to respiratory and gastrointestinal infections has shown a marked decrease.

NORWAY

Cryptorchism.—Recent numbers of the journal of the Norwegian Medical Association have shown once again what pitfalls the authors of textbooks may fall into when they copy each other blindly. According to one modern textbook, failure of descent of the testes is demonstrable in 10% of newborn infants, in 2% of boys under the age of puberty, and in 0.2% of male adults. These figures having been quoted in a recent editorial, Prof. Alfred Sundal, who is in charge of the Children's Hospital in Bergen, challenged them, and to prove his point gave instructions for a scrutiny of the records of the 4,008 boys examined at the time of their birth in a maternity hospital by a consultant pediatrician during the years 1951 to 1953. Among these boys there were only 23 with undescended testes. Among them were 15 with unilateral cases, equally frequent on the right and left sides. The remaining eight boys suffered from bilateral retention. Thus retention of a testis was demonstrable in only 0.57% of the newborn infants. The enormous gap between this figure and the 10% of the textbooks betrays the relative carelessness with which the testes have been examined at birth in the past. When the scrotum is palpated by one hand only and the hand is cold, the chilling and manipulation of the scrotum will induce the retraction of many a testis to the entry to the inguinal canal. In order to examine for retention of a testis, the hand examining the scrotum should be supplemented by the other hand, which exerts slight pressure downward from the external inguinal ring. This examination requires warm hands. The testes can in this way be palpated in 75% of the boys sent to hospital for alleged cryptorchism.

Industrial Hygiene.—Prof. Haakon Natvig of the University Institute of Hygiene, Oslo, has stressed the difficulty of demonstrating in figures the great advances made recently in industrial hygiene, but the following figures are remarkably convincing: Between the five year periods 1935 to 1939 and 1945 to 1949 the average number of lost working days due to silicosis per year fell in the mining industry from 19.5 to 5.1 days per patient. In the agricultural and stone industries there was a corresponding fall in the same period with regard to silicosis from 4.6 to 3.3 days per patient. In the iron and metal industries this fall was from 0.7 to 0.1, and in the chemical industry, from 0.9 to 0.1. Phosphorus poisoning no longer exists in Norway, and manifest lead poisoning is rare. Though the total number of occupational accidents has increased, the number of such accidents per working day unit has fallen by 21% between 1930 to 1939 and 1940 to 1949 (*Nord. hyg. tidskr.* [No. 5-6] 1954). Absenteeism on sick leave may appear to be greater now than it was formerly, because the workman who used to remain at work in spite of a severe cold, rheumatic pains, or digestive disturbances now goes on sick leave. Physicians urge patients to stay in bed for sore throats, severe colds, and febrile diseases, and in the case of certain diseases such as jaundice, prolonged convalescence is advised. Plans for the future include the creation of an occupational hygiene institute that, linked with the University Institute of Hygiene, will provide training in the subject by a staff of experts, a laboratory service, and facilities for research.

Capillary Microscopy of Skin Lesions.—Since 1947, Dr. Oscar Gilje has been systematically studying capillary microscopy especially in skin diseases at the university dermatological department of the Rikshospital in Oslo. In *Nordisk medicin* for Oct. 7, 1954, he shows to what extent capillary microscopy can throw light on the diagnosis of such skin diseases as psoriasis, lichen planus, lupus erythematosus, and Boeck's sarcoid. With regard to lupus erythematosus in its discoid form, the changes demonstrable by capillary microscopy are definite and characteristic, showing profound changes from the normal. Circular or oval greyish structures, darker than the surrounding tissues, dominate the picture, representing "keratotic plugs." The blood vessels surrounding these structures form bulky coils running horizontally and in a slanting direction. No normal capillaries are seen. This picture facilitates the diagnosis of lupus erythematosus. Gilje is less categorical with regard to his findings in certain other diseases, but he has succeeded in showing how much can be learned from capillary microscopy when applied to the diagnosis of various skin diseases.

SWITZERLAND

International Congress for Preventive Medicine.—The third International Congress for Preventive Medicine was held in October in Bad Ragaz, Switzerland. Dr. Mooser, chief of the department of hygiene and bacteriology at the University of Zürich and president of the congress, emphasized that, since prophylactic immunizations are now obligatory in practically all civilized countries, the epidemiology of infectious diseases is no longer of primary importance in disease prevention. Even tuberculosis has lost some of its dangers as the result of prophylactic measures. The prevention of rheumatic diseases, cancer, and cardiovascular diseases are now the leading problems. Because occupational hygiene has been growing in importance, sociologists and physicians should combine their efforts for the general welfare. Dr. Fellinger, chief of the second medical clinic of the University of Vienna, called attention to the possibility of detecting those in whom rheumatic diseases are likely to develop and to the necessity of radical measures for eliminating foci of infection and other measures. The early detection of those in whom rheumatic diseases are likely to develop is particularly important in connection with their choice of occupation. Metabolic studies on patients with rheumatic diseases indicate that by proper nutritional guidance a favorable influence might be exerted on the resistance of those who have or are threatened with rheumatic diseases.

Hegglin of St. Callen stated that smoking is a widely disseminated toxicomania that involves one-half of the male and one-fourth of the female population. The damage caused by the consumption of tobacco is the more tragic, as it often involves persons during their most productive period. The connection between smoking and coronary infarction is so evident that it should be stressed repeatedly. Pfannenstiel of Marburg, Lahn, said that chemotherapeutic agents influence not only the biological functions of pathogenic organisms but also those of the host. The combination of a healthful mode of living; physical hardening; sufficient sleep; and a diet rich in vitamins and minerals, in which fruits and fruit juices should be included, is one of the best means of preserving resistance against infections. Professor Cocchi of Zürich said that the increased frequency of cancer in the close relatives of cancer patients is practically the only indication of an increased threat of cancer in the still healthy relatives and shows the advisability of periodic observations. Any substance that is carcinogenic in animals should not be dismissed as being without danger in human beings. If such a causal factor is suspected in any form of cancer, an effort must be made to protect human subjects against it. Nida of Munich questioned whether breast cancer is preventable. Since it seems impossible to recognize the development of these cancers early enough for effective treatment, physicians should try to prevent them by the use of biochemical and hormonal agents in the subjects at risk.

Boenheim of Leipzig stated that environmental factors play a more important role than hereditary factors in the pathogenesis of most diseases. Many factors that appear to be hereditary are only congenital. The more man and his environment are regarded as a unit, and social conditions are improved, the more so-called hereditary factors will disappear. Even hereditary diseases can frequently be influenced by external factors. Professor Grote stressed the fact that health during advanced years is the result of the subject's constitution and the diseases he has experienced in his life. Health and a sensible mode of life in younger years insure an old age that is productive and free from illness. Professor Neuffer of Stuttgart said that, since preventive medicine is concerned not only with the protection of the health of the individual but with that of the entire population, the state has taken an interest in preventive medicine. It should not, however, become exclusively a concern of the state. One should not separate curative from preventive medicine, because both spheres are closely interwoven. Preventive medicine should remain the domain of the practitioner, because like curative medicine prevention requires a relationship of personal confidence between the person who asks and who gives the advice. Professor Stransky of Vienna said that the mentally and ethically most valuable persons, and also the most creative, are often overburdened and that those who rise above the mass are given an excess of work and responsibility. They often become neurotic and wear out prematurely. This is sometimes designated as manager's disease, and it may be found in those with strong as well as those with weak constitutions. Dittmar of Wiesbaden regards manager's disease as a psychosomatic problem that is connected with the materialism of our age. Beyond that, manager's disease is the unavoidable individual expression of external and internal anxiety.

Scholten of Düsseldorf said that both accelerated and retarded development depend to a large extent on the external conditions of life, social position, and constitutional factors. There is danger of the premature exploitation of young persons as adult workers and their incorporation into the sphere of adults that is not in keeping with their age. Professor Frey of Oberhofen, Thunersee, stated that the warm, dry wind of the Alps exerts its effects not only by temperature, irradiation, or water content but also by electrical forces. The perception of electrical atmospheric stimuli cannot be defined with exactness, but it is certain that sympathetic nerve endings are sensitive to such electrical stimuli. The respiratory mucosa is particularly perceptive. It is the first line of interchange between the inside and outside. Expired air contains fewer ions than inspired air, because atmospheric ions are used during respiration. The Alpine wind with its predominance of negative ions decreases the circulation and thereby hinders optimal organic function.

Insect Vectors of Disease in Aircraft.—Dr. P. H. Bonnel of the Epidemiological Services of the World Health Organization has studied the danger of transporting insect vectors of human, animal, and plant diseases in the cabin or the luggage holds of aircraft, or on the clothes of passengers, or even on flowers that may be presented to them. The commonest of these are mosquitoes, flies, fleas, and lice. Less frequently ticks, beetles, cockroaches, Colorado beetles, and others may be so transported. Unless precautions are taken, aircraft may carry the vectors of malaria, yellow fever, virus encephalitis, sleeping sickness, typhus, and plague. Such diseases of animals as bovine anaplasmosis; Nairobi disease, which affects sheep; encephalomyelitis, plague, and infectious anemia of horses; or canine filariasis may be spread in this way. Insects harmful to agriculture include the doryphore, the Japanese beetle, and the wasp. High altitudes and changes in air pressure and temperature during long flights do not permanently affect the activities of the insects. The vibrations in modern aircraft are reduced to a minimum and insects that penetrate into a plane can live there for as long as they can exist without food.

Certain insects may lay their eggs on the wings, fuselage, rudder, or propellers of the aircraft. The wind, altitude, and changes in temperature appear not to affect the survival of these eggs. On one single plane thousands of larvae emerged from the eggs and swarmed over the surface of the aircraft. For disinfestation of aircraft, preparations with a basis of pyrethrin and chlorophenothane (DDT) are used as aerosols. The material and apparatus used vary, however, from one country to another, as do the insecticide formulas and the methods of their use. Some countries carry out disinfestation of aircraft on departure, others during the course of flight, and others again on arrival. Some carry out only one operation, while others consider that, for safety, it is essential to repeat disinfestation several times. Most governments have established regulations to meet their own particular needs, and it is desirable that these regulations be made uniform and improved in the light of recent progress in the field of insecticides and their use. The application to the interior of aircraft of certain new resinous varnishes containing a powerful insecticide with residual effect is perhaps the best and simplest way to control insects in aircraft.

TURKEY

Procaine Given Intravenously.—In an article in *Dirim* (vol. 28, no. 5) Dr. Orhan Bumin reported on the use of procaine intravenously as an anesthetic or analgesic. Of the 16 patients treated, 2 had periarterial sympathectomy. A 29-year-old man entered the hospital for sympathectomy for endarteritis obliterans. He had had pain in his left leg for three months. Physiotherapy and analgesics had not given relief. On admission he was in great pain and had been unable to sleep for four days. He was given 1,000 cc. of 0.1% procaine in a 5% solution of dextrose intravenously. During the administration the pain gradually diminished, increased slightly after 20 minutes, then completely subsided. The patient was comfortable for two days. After periarterial sympathectomy he recovered. Another patient, a 49-year-old man, had had numbness, lameness, and increasing pain in the legs for eight years. One year after the onset of symptoms he entered the hospital and was treated for thromboangiitis obliterans. Since then he had taken various analgesics for six years. When the pain in the legs became unbearable and made sleep impossible he entered the hospital. The intravenous administration of procaine brought instant relief, and he was free from pain for nine days. Recurring severe pain necessitated a sympathectomy, from which recovery was uneventful.

Good results were obtained with the administration of procaine intravenously as a general anesthetic during four operations requiring tracheal or pharyngeal intubation. Reflexes returned within two minutes after the conclusion of the operation. The patients regained consciousness after five minutes and were free from nausea or vomiting. Good results were obtained with the drug when given as a postoperative analgesic after gastrotomy, decortication of the lung, sternal or costal resection, and thoracoplasty. It facilitated coughing and expectoration and relieved hepatic colic. Intolerance to the drug was observed in one patient with severe intercostal neuralgia. He received 250 cc. of the solution. His blood pressure dropped from 130 to 6 mm. Hg, and his pulse rate rose to 150 per minute. The infusion was discontinued immediately. This patient also had an idiosyncrasy to racephedrine (Ephetonin) hydrochloride tablets shown by flushing of the face and tachycardia. An attempt to treat him with procaine two months later failed for the same reason. In the other patients good results were obtained.

Results of Antimalarial Campaign.—Currently there are 34 antimalarial campaign zones in Turkey, employing 1,431 sanitary inspectors and technicians. In *Saglik Dergisi*, Dr. Ertugrul Akinci, chief of the Ankara zone, reported that in 1951 there were 748 villages with 288,293 inhabitants; in 1952 there were 775 villages with 295,385 inhabitants; and in 1953 there were 759 villages with 307,085 inhabitants under control. During 1951 blood and spleen examinations of 84% of the population were made; in 1952 such examinations were made of 86%; and in 1953 of 94%. In 1951, 4.6% of the persons examined were found to have an enlarged spleen; in 1952 the percentage was the same, and in 1953 it was 1.5%. In 1951 the birth rate was 32.77 per thousand population; in 1952 it was 42.15, and in 1953 it was 40. The death rate in 1951 was 17.84 per thousand population; in 1952 it was 13.61, and in 1953 it was 12.3. The infant death rate in 1951 was 146.25 per thousand live births; in 1952 it was 114.30; and in 1953 it was 95.34. A total of 136 tons of chlorophenothane (DDT) in various combinations of powder, 30% xylol, and 15% chlordane were used. There were no new cases of acute malaria during the three years 1951 to 1953.

CORRESPONDENCE

TOBACCO SMOKING AND DEATH RATES

To the Editor:—Both Hammond and Horn, in THE JOURNAL for Aug. 7, 1954, page 1316, and Doll and Hill (*Brit. M. J.* **1:**1451-1455 [June 26] 1954) have published preliminary reports on extensive surveys dealing mainly with the relation of tobacco smoking to deaths from lung cancer and coronary heart disease. These reports carry the matter little further than did mine written in 1947 (*Ohio M. J.* **46:**1165-1170 [Dec.] 1950), to which neither of them made any reference. There seems to me to be a rather glaring fault in their statistical methods. In neither survey was proper weight given to the marked bias arising from the surveyed subjects' place of residence—whether *urban* or *rural*. Hammond and Horn do note that their rural populations contain a higher percentage of nonsmokers and a higher percentage of light smokers among smokers than obtains in their urban groups; but they fail to recognize this as an important bias factor or note its sharp impingement on the handling problems of their accumulated death records.

A survey of smoking habits in all sections of Columbus, Ohio, in 1947 (Mills and Porter: *J. Nat. Cancer Inst.* **13:**1283-1297 [April] 1953) pointed out a significant increase in cigarette smoking among white men on going from the cleaner suburban portions of Columbus into the intermediate and dirtiest industrial sections of the city. This leads up to a second important bias factor entering into the tobacco-smoking–disease relationship that Mills-Porter and I were the first to point out (*Occup. Med.* **5:**614-633 [June] 1948), namely, that polluted air and tobacco smoke produce similar types of damage in the respiratory tract and that together they may be far more damaging than either one acting alone. I have also pointed out that the much higher prevalence among urban residents of death from metabolic and degenerative disease may properly be taken to indicate the severity of stress factors in the more restless urban life (*Am. J. Hyg.* **29-A:**147-164 [May]1939).

It thus becomes obvious that urban and rural survey populations cannot be safely lumped together into one statistical mass without proper weight being given to these various factors of environmental bias indigenous to urban versus rural populations. While I, myself, also am convinced that tobacco smoking carries the hazards being accorded it, I feel that efforts to adduce scientific proof of prevailing relationships should carry all possible safeguards against the drawing of faulty or invalid conclusions.

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NURSES

To the Editor:—I agree with the editorial "National Nurse Week" in the Oct. 9, 1954, issue of THE JOURNAL, page 608, in which it is stated: "Progress in nursing means better health for the nation." I also wish to point out that the free use of the word "recruitment" in this editorial is an admission of a fault somewhere along the line, for nurses should never have to be recruited. Applicants for this honorable occupation should be numerous and scrupulously examined. Sometimes one suspects there exists a "lukewarm war" between the nurses and the hospitals, as the former, as a group, are quite underpaid. This is probably an important reason for the shortage, but there are other and much more important reasons, I believe. They are: the length of courses, the archaic attitude toward marriage and pregnancy, and family migration.

There is no reason why a course cannot be shortened to two and a half years in some centers, such as government hospitals, where menial tasks can be done by permanent nurse aides. Many single girls avoid the nursing course because it constitutes three or more years of isolation during which time they must not marry (or marry secretly, which causes a great deal of discontentment). This privilege was given to medical students reluctantly not too long ago and should now be given to nurses in training. When a pregnancy ensues, a nurse in training should be allowed to have a leave of absence of one or two years and should be allowed to return and finish the course after such a period—all for the good of the nation, home, family, and community. In the case of poverty, or moving of the family, or the husband in the armed forces, the nurse and her course should be transferable, interstate if not interurban. Moving privileges could be abused if a nurse could cross the street from one hospital to another, but there could be some ruling whereby a certain radius could remain out-of-bounds for transfer or comparison of hospitals. The transfers could be limited to semesters or annual intervals, and qualifying examinations could be repeated for all new entrants, so that substandard ones could be rejected. In short, if the nursing schools were open, as they should be, and as the universities are supposed to be, allowing freedom of transfer of students from one university and college to another, there should be no shortage of nurses whatever. It is not the three years of incarceration that the intelligent nurse-hopeful fears; it is the numerous implied fine-print paragraphs in the "contract" that makes her life a possession of the hospital that has signed her up.

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THE PSYCHIATRIC EFFECTS OF FLYING (LOW) TO CONVENTIONS

To the Editor:—Having no cotton planted or wheat standing in the field, my only concern for the weather arises when I head for the airport. On my way to be one of the thousands of relaxed, carefree passengers who depart on time every month, I notice my increased interest in wind and rain. In fact, many other "limousine" riders become equally interested in the weather—so much so that the limousine (which bears a striking resemblance to a city bus, except it's easier to fall in the aisle and it's always dark) has iron bars to prevent the passengers' sticking their heads out the windows for a better view of the scattered clouds. After the bus goes over the flat plains for hours, making the usual number of detours off the high-speed highway, the airport comes into view, well placed in a short valley with a mountain at the end of each runway. The terminal is a large, comfortable, well-planned building that has been under construction since the end of World War II and is still unfinished. The limousine speeds on to a quonset hut, which faded signs proclaim as a temporary terminal. While waiting for the baggage to be scattered up and down the pavement, one cannot but admire a large red vehicle (i. e., "crash wagon") tactfully parked so that the only way to avoid inspecting it would be to feel your way past it with your eyes shut.

After being checked in by slender and striking young ladies who lift your 40 lb. bag effortlessly off the scale after you have taken both hands and a knee to get it off the floor, there is nothing to do but stand around and wipe the perspiration off your palms (and reduce your hernia). To kill time you may wander over to a soft-drink machine with a control panel like a DC-7's that, if you push the right buttons fast enough, will dispense anything from hot goat's milk to a plate lunch—but, if your timing is off, may toss you a cup of carbonated coffee. If you're a betting man, you may pause at the insurance vendor and casually take out a $62,500 insurance policy without a physical (with this policy and a little bad luck your heirs could start their own airline). As my wife jokingly says on every stormy day, "Take the maximum, dear." Superficially it would seem she is thinking of the $62,500, but psychologically this is not the case; she merely believes completely in predestination where I'm concerned and can't pass up a Presbyterian hunch. Finally, the flight is called right on time. Of course, this isn't the flight you were scheduled on; it was cancelled three hours earlier.

I feel quite sure that other airline passengers do not share my anxiety, but they do relax in the most unusual ways. For instance, I was sitting by an experienced traveler (a gynecologist by trade) who "never" traveled any other way—I am sure of this because he explained it to me three times while attempting to push the buckle on his seat belt through the buckle on mine—and, once we had cleared the high power lines at the end of the runway, he settled back to relax and read THE JOURNAL. That must have been one of the best-written articles in the history of medical publication, because after two hours he was still reading the same page.

To make conversation I remarked, "Interesting journal?"

He replied, "What journal?"

But we were over the field and it was time to start fighting the seat belts again, so the conversation was dropped.

When flying, time is not too important to the carefree practitioner; but occasionally one can be seen beating his watch on his shoe heel, convinced that it has stopped or is in reverse, since, after three hours in the air, his timepiece only shows 15 minutes have elapsed.

Another type of experienced traveler is the "take-off timer" (usually a surgeon). I have ridden with several who enjoyed this harmless game, and I find it quite habituating. After a few trips, the "timer" stares fixedly at his watch and in 25 seconds, or whatever the average takeoff time is, announces, "We're off." Usually they can come pretty close, particularly when you feel your neck suddenly shortened and can no longer see the earth. However, my first attempt was a little premature; the captain "gave her the gun" and I watched my watch and in 25 seconds shouted, "We're in the air." The man next to me shook his head and said kindly, "Wait till he starts the other three motors."

On one occasion I had the pleasure to ride on the airplane in which the Wright brothers flew back from Kitty Hawk. You could hardly hear the motors—there was so much noise inside. Everything vibrated but the passengers. As usual, the fellow next to me fastened his seat belt and fell into a deep, untroubled slumber. It is amazing the way physicians can sleep on airplanes and never loosen their grip on the arm of the seat. Anyway, in a moment of relative quiet the lid on our ashtray got in phase with the motors and began vibrating quietly, like a jack-hammer breaking up concrete—my fellow passenger grabbed it so tightly, he crumpled the lid, though from all appearances he was still slumbering away.

The best seat on any airplane is not with the pilot, in the lavatory, or on the stewardess' lap, but just ahead of two persons who converse as follows:

"Say, did you read about that plane crash the other day?"

"No, what about it?"

"That was the damndest thing, same kind of plane as this, just flying along, not a cloud in sight and 'bang.' "

In such a situation, it is best to sleep with three pillows: one over each ear and one to chew on.

One fetching custom indulged in by airlines is their reluctance to be concrete about late departures, as well as the tendency to begin selling seats on new airliners while they are still on the drawing board. Having emptied many a coffee urn waiting around airport terminals tastefully decorated to resemble old railway depots, I always double-check my flight #13 with the little lady in the hotel ticket office. Recently, after a convention in St. Louis, I was reassured so many times that they started playing a recorded announcement every three minutes when I called up. Two hours after the scheduled "on time" departure, they were still insisting there would be no delay, so after selecting an "upper" on the overnight limousine to the airport I left the hotel. I raced into the airport (the next morning) to reconfirm my ticket and just in time, since the lady said flight #13 would take off in five minutes. In my joy at being on time, I grabbed my bag and dashed for the gate. After running up and down the runway for some 30 minutes without sighting the plane, I returned for more information. The lady smiled and said, "Doctor, if you had waited a moment, I would have explained—the plane was taking off from New York in five minutes, not St. Louis."

"Lady," I said, "where can a man get a drink?"

"Right through that door, sir," she replied, smiling with all the warmth of a professional pallbearer.

I picked up my bag again, but not wanting to dash off half-cocked (as the urologists say) I decided to try one more clarifying question.

"Lady," I said, "that *is* an unusual bar; in fact, it appears to be filled with parked cars. What is it, a new drive-in arrangement?"

"Oh! no, sir," she answered. "That's the limousine stand. You have to go back to the hotel in St. Louis for a drink."

Someday, some psychiatrically oriented airline is going to place a little booklet in the pocket on the back of each seat for the nonfatalistic passenger to read and, maybe, remember. This little booklet would include such reassurances as: the motor may backfire without falling out of the wing, and a little smoke (i. e., enough to blot out the terminal) issuing from the exhaust when the motors are being started is not the first step toward having your ashes mailed to your next of kin. It wouldn't hurt to stress the fact that there is safety in numbers, particularly where motors are concerned. Also, it is as much a comfort to the passengers as to the pilot to have him make his way to the lavatory—provided he doesn't run or go too often. However, until some authentic information is compiled for the nonfatalist or until each passenger is provided with his own instrument panel, I'll go ahead and make my own diagnosis of each new noise I hear—and sleep as soundly as anyone else with a firm grip on the arms of the seat.

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LEPROSY

To the Editor:—The article by Dr. N. E. Levan in THE JOURNAL for Sept. 11, 1954, page 126, "Leprosy Acquired in Military Service During World War II," is a most important one, but he has by no means shown that the disease actually was acquired in service. Probably it was not. The diagnosis appears well established, and Dr. Levan is to be congratulated on making it promptly so that treatment could be started. In a matter of classification, one should know whether the macules are sharply defined (clinically tuberculoid) or merge gradually into the surrounding skin (clinically lepromatous). But leprosy is a disease with a long incubation period; 5 to 10 years or more is the rule. Cases that develop within 18 months of first exposure, as predicated here, are, if proved, so rare as to be reportable. The patient's age—37 years at the time he went to New Guinea—is also against the thesis of recent infection. Leprous infection of adult Europeans does occur, I am sure (although some still deny it), but it is unusual.

In reaching a decision, if it can be done, one must consider: 1. What is the patient's ethnic background? Certain groups, e. g., French in Louisiana and Mexican in Texas, are known to be more susceptible, and the disease is still endemic among them. 2. Is there *any* family history of leprosy? Too often facts are concealed that may have great influence both on susceptibility and on the possibility of early contact. Where were his grandparents born? 3. Did the patient or his parents ever visit known endemic areas? In the continental United States these are parts of Florida, Louisiana, Texas, and California. But of course the generally accepted statement that "Kansas is a nonendemic region" is no proof that the disease could not be contracted there. 4. In what part of New Guinea did he serve, and what contact did he have with natives there? The known distribution of leprosy in Dutch New Guinea is spotty, and presumably this is also true in the Australian end. His time in the Philippines before appearance of the first symptom was so brief that it is almost incredible that infection could have occurred there. If it could be proved that he was infected in New Guinea or the Philippines, this would indeed be a valuable addition to the literature of leprosy. So far it has not been done.

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SURGERY IN INFECTED WOUNDS

To the Editor:—In the April 17, 1954, issue of THE JOURNAL, page 1326, in an article entitled "Fundamentals of Surgery in Contaminated and Infected Wounds," the author said, "Actually, débridement of a wound may take place by four methods: chemical, enzymatic, spontaneous or biological, and surgical." Another method is the wound bath or the immersion of the accidental or operative wound in water at a temperature of 109 to 113 F for 30 to 45 minutes twice daily. Ordinary tap water is used without any added ingredients. It is not sterile and should not be sterilized. The same water may be used repeatedly by the same patient. In treating emergency cases water at room temperature can be used for shorter periods and for several persons one after another. I have no experience with this modification or with the following proposal. In severe wounds or ulcers of the gastrointestinal tract, whether bleeding or not, that are accessible by probe or enema, prolonged washing with hot water may be tried. Wounds and ulcers of other mucous membranes, whether bleeding or not, that are accessible through bodily orifices may also be treated by this technique.

This method includes the chemical, the enzymatic (which, strictly speaking, is a subdivision of the chemical), and the spontaneous or biological methods. It is beyond the scope of this letter to elaborate on the action of the wound bath. I have published a letter in the correspondence section of the September, 1949, issue of the *American Journal of Ophthalmology* entitled "Use of Water Baths to Promote Wound Healing." Since then I have collected more data in order to extend the indications for the wound bath. I believe that wound excision is obsolete because the antibiotics so effectively control infection and because of the lack of any microscopic or laboratory sign for determining whether or not some tissue particle is viable. The surgeon's main task is not to suture the wound but to assure the best circumstances for wound closure. The wound bath brings to light not only such foreign bodies as stone, glass, and pieces of cloth but also sequestrums in osteomyelitis. In fresh wounds it reveals gunpowder tattooing. In infected and slowly healing wounds there is no better method. In fresh wounds hot water induces blood clotting. The method has the further advantage that it is so simple that it may be used by lay persons in treating mass casualties.

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STERNAL PUNCTURE

To the Editor:—The editorial, "Deaths Following Sternal Puncture," in THE JOURNAL of Nov. 6, 1954, page 992, failed to emphasize the use of the iliac crest for bone marrow aspiration biopsy, as suggested by Rubinstein (*J. A. M. A.* **137:**1281 [Aug. 7] 1948). The superiority of this method as compared with sternal puncture was acknowledged as early as 1949 in an editorial comment by Drs. G. A. Minot and W. B. Castle that stated: "In adults at least, iliac crest is the favored site for puncture in our hands. Sternal puncture is no longer performed." (Year Book of General Medicine, 1949, Beeson, P. B., and others, editors, Chicago, Year Book Publishers, Inc., 1949, p. 335.) For the past four years I have used the iliac puncture for bone marrow aspiration biopsy almost exclusively and with excellent results. I perform sternal puncture only in exceptional cases. The advantages of the iliac bone marrow aspiration biopsy are readily acknowledged, in spite of the fact that for 20 years, when I *did* use sternal puncture exclusively, I never experienced complications or dangers worse than a "dry tap." When diagnostic punctures are performed by younger doctors, they are carefully supervised until it is made certain that they have acquired enough experience to make the puncture on their own. Inquiry is always made to learn if the patient has any allergy, and in case of the slightest suspicion a sensitivity test with procaine (Novocaine) is performed. Iliac puncture, using full surgical cleanliness and excluding the possibility of allergic reactions, is a safe procedure. And safety is the first requirement in any diagnostic test.

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PEPTIC ESOPHAGITIS

To the Editor:—A recent case of an 81-year-old woman who underwent gastroenterostomy for benign pyloric stenosis and was dressed, up and around, and symptom free the next morning after the operation attracted my attention to the editorial "Peptic Esophagitis" in THE JOURNAL for Oct. 30, 1954, page 893. This, in turn, posed the question: why not treat, without preliminary esophagoscopy or gastroscopic examination, "every patient with the slightest discomfort or abnormality in swallowing, every patient with regurgitation, 'heart burn' or 'water brash' "? If recovery occurs, such endoscopic measures will be unnecessary; if not, a laparotomy, if not contraindicated, to permit complete examination is plainly indicated. With present improvements in anesthesia, technique, and preoperative and postoperative management, the discomfort and danger have been minimized. If you were the patient, which would you prefer?

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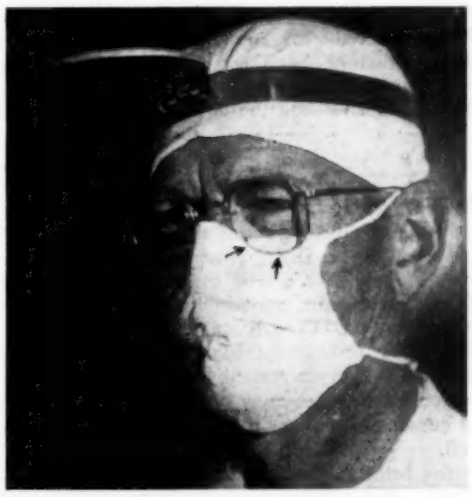
A SIMPLE REMEDY FOR FOGGY GLASSES

To the Editor:—We hereby present what has been to us a satisfactory solution of the problem of foggy, steamed-up glasses when a mask is worn. One need not emphasize the fact that the gathering of moisture on glasses during a surgical procedure has a high nuisance value. Various attempts have been made to prevent this occurrence. Certain chemical agents, among which are the silicones, have been used with some success. Probably the most widely used preventive method is to insert a metal strip inside the upper border of the mask and mold it to the bony contour of the nose and infraorbital arch. These procedures take time.



We have had some surgical glasses made, the lower borders of which are of such shape as to be in contact with the nose and the medial portion of the infraorbital rim (areas indicated by arrows in the illustration). The glasses are placed over the top of the mask in such a way that they hold the mask firmly to the face. Expired air is prevented from passing upward over the comparatively cold glass, and, provided the glasses are properly seated on the mask, fogging does not occur. In certain cases it may be necessary to loosen the lower string on the mask so that air may more easily find its way out below. The glasses have a gold frame, so that there is an element of firmness and weight to hold the mask down. This, we believe, is important, as rimless glasses or glasses with light frames would not by their own weight help to hold the mask in firm contact with the skin of the nose and face. Their shape and size are determined by trial. This simple and trouble-proof equipment is recommended to those who have the above-mentioned difficulty.

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GOVERNMENT SERVICES

ARMY

Medical Consultants Meeting.—The ninth annual meeting of the Society of Medical Consultants to the Armed Forces was held at Walter Reed Army Medical Center, Washington, D. C., Nov. 22, 1954. Dr. Richard A. Kern of Philadelphia presided over the session. The speakers were Dr. Frank B. Berry, Assistant Secretary for Defense (Health and Medical); Major Gen. George E. Armstrong, Army Surgeon General; Rear Adm. H. Lamont Pugh, Surgeon General of the Navy; Major Gen. Dan Ogle, Air Force Surgeon General; and Lieut. Gen. Williston B. Palmer, Deputy Chief of Staff for Logistics, U. S. Army. At the business meeting in the Armed Forces Institute of Pathology's new building, Dr. Worth B. Daniels, Washington, D. C., was elected president. The participants were then conducted on a tour of the new building by Brig. Gen. Elbert DeCoursey, director of the institute. At the annual dinner at the Walter Reed officers' club, also in attendance were Major Gen. Norman T. Kirk (Ret.) and Major Gen. Raymond W. Bliss (Ret.), former Surgeons General of the Army.

Course in Surgery in Acute Trauma.—A course in surgery in acute trauma will be conducted at Fitzsimons Army Hospital, Denver, from Jan. 17-21. It will stress the fundamental principles of the over-all surgical care of patients who have sustained injuries and recommendations as to management of large numbers of patients. While primarily for all medical corps officers on active duty, including interns and residents, the course is open on a space available basis to all medical corps reserve officers of the Army, Navy, and Air Force. Reserve officers will receive point credit for attending. The Army will supply most of the instructors, but these will be supplemented with civilian consultants. Limited billeting and mess arrangements for reserve officers attending the course will be available.

NAVY

Awards to Navy Officers.—Two Navy medical officers were honored at the Annual Meeting of the Association of Military Surgeons in Washington, D. C., Nov. 29 to Dec. 1, 1954. Capt. Christopher C. Shaw, M.C., now assigned to the Philadelphia Naval Shipyard, received the association's Sir Henry Wellcome award for his essay on "The Clinical Syndrome of Acute Renal Insufficiency." This prize and medal, established by Sir Henry Wellcome in 1916, is given annually by the Wellcome Foundation in London for the best essay on a military medical subject. The award consists of a silver medal, a scroll, and an honorarium of $500.

Commander John R. Seal, M.C., head of the communicable disease branch of the Bureau of Medicine and Surgery was given the Edward Rhodes Stitt award for his controlled studies of infections of the upper respiratory tract. These studies, conducted over a period of eight years, demonstrated that the oral administration of antibiotics provided an effective means of preventing or aborting epidemics of streptococcic infections. Commander Seal is the first recipient of the Stitt award, which will be presented annually by the Association of Military Surgeons of the United States. The award was established by Chas. Pfizer & Company, Inc., Brooklyn, N. Y., to honor the memory of Rear Adm. Edward Rhodes Stitt, who became the 16th Navy Surgeon General and made many contributions to tropical medicine. The award consists of a life membership in the association, a metal plaque, and an honorarium of $500.

VETERANS ADMINISTRATION

Personal.—Dr. Arnold A. Schillinger, chief of professional services at the Veterans Administration Hospital in Montrose, N. Y., has been appointed manager of the 2,312-bed neuropsychiatric VA hospital at Northport, Long Island, N. Y., succeeding Dr. Roger P. Hentz, who is retiring on Dec. 31, 1954, after more than 32 years of government service.

PUBLIC HEALTH SERVICE

More Than Ten Million Dollars Approved for Medical Research.—Dr. Leonard Scheele, Surgeon General, has announced approval of federal grants for 972 medical research projects, totaling $10,275,533, for basic and applied research in many of the major diseases afflicting Americans today. The grants were approved during recent meetings of the seven national advisory councils and have been scheduled for payment as of Dec. 1, 1954. Two hundred eighty-nine of the awards, totaling $3,079,840, were for new research projects, and 683, totaling $7,195,693, were for continuation of existing projects. The awards were made to scientists in about 215 research institutions in the United States and are administered by the National Institutes of Health, research bureau of the Public Health Service.

These grants represent about 30% of the fiscal year 1955 funds (totaling $33,918,000) appropriated by Congress for medical research projects supported in whole or in part by Public Health Service grants. The program covers particularly the type of research dealing with causes and treatment of heart disease, cancer, mental illness, arthritis, and the metabolic diseases (such as gout, liver diseases, diabetes), the neurological and sensory disorders (glaucoma, retrolental fibroplasia, multiple sclerosis, cerebral palsy, epilepsy), diseases of the teeth and mouth, and certain diseases of microbiological and parasitic origin (such as influenza, infectious hepatitis, the common cold, malaria, and schistosomiasis). Other projects supported by PHS research grants are concerned with fundamental exploration of metabolic and biological phenomena underlying the causes of most of the prevailing noninfectious diseases.

Two New Study Sections.—The division of research grants of the National Institutes of Health will establish two new study sections, one in biophysics and the other in human embryology, on Jan. 1, 1955. Applications for review at the first meeting of the two sections will be accepted up to March 1, 1955. The Biophysics Study Section will be concerned with the field of molecular biology, the study of living matter at the molecular level, particularly from the standpoint of the disciplines of physics, physical chemistry, colloid chemistry, and protein chemistry. Dr. F. O. Schmidt of the Massachusetts Institute of Technology will serve as chairman of the group and Dr. Irvin Fuhr of the division of research grants as executive secretary.

The Human Embryology and Development Study Section will review research proposals concerned with such problems in human reproduction as infertility, pregnancy and labor, congenital malformations, and the newborn infant, especially the premature. Dr. Louis Hellman of the State University of New York, New York City, has been named chairman and Dr. Elsa O. Keiles, division of research grants, executive secretary. The establishment of these two new sections will bring the total number of study sections in the research grants division of the National Institutes of Health to 19.

Conference on Gastrointestinal Cancer.—The sixth National Gastrointestinal Cancer Conference, sponsored by the gastrointestinal cancer committee of the National Advisory Cancer Council, National Cancer Institute, Public Health Service, will be held on April 4 and 5, 1955. With the New York Cancer Society acting as host, the conference will meet in Hosack Hall at the New York Academy of Medicine, 5th Ave. and 103rd St., New York City. The program will emphasize clinical aspects of gastrointestinal cancer. All interested scientists are invited. Dr. Morris K. Barrett of the National Cancer Institute, Bethesda 14, Md., is executive secretary of the gastrointestinal cancer committee. Dr. George T. Pack, New York, is chairman. Correspondence should be addressed to Dr. Barrett.

Personal.—Dr. Grant L. Rasmussen has been appointed chief of the section on functional neuroanatomy, laboratory of neuroanatomical sciences, National Institute of Neurological Diseases and Blindness of the National Institutes of Health, Washington, D. C. Dr. Rasmussen formerly was professor of anatomy in charge of neuroanatomy at the medical school of the University of Buffalo.

BUREAU OF MEDICAL ECONOMIC RESEARCH

AGE AND SEX DISTRIBUTION OF HOSPITAL PATIENTS

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In the annual census of registered hospitals for 1953 conducted by the Council on Medical Education and Hospitals of the American Medical Association the following four items to determine the age distribution of the patients in the hospital on the day of reporting were included in the schedule at the request of the Bureau of Medical Economic Research: (*a*) number of males and number of females 14 years of age and under (excluding newborn infants), (*b*) number of males and females 15 to 44 years of age, (*c*) number of males and females 45 to 64 years of age, and (*d*) number of males and females 65 years of age and over. Data on diagnosis, treatment, age, and sex of all patients admitted during the entire year of 1953 were not requested. The Bureau, which has processed the hospital schedules for several years in its IBM division, was seeking these data as an important link in a long-range research program. Such data had not previously been requested of the hospitals, and about 1,000 of the 6,840 registered hospitals that replied to the other portions of the schedule did not reply to these four items on the age and sex of patients; hence it was necessary to contact these 1,000 hospitals again. As shown in the tables, no data on the age and sex of patients were obtained from 301 hospitals that, as a group, reported less than 5% of the national total of beds, admissions, and average daily census. This study was, therefore, based on the reports of 6,539 of the 6,840 registered hospitals described in the 33rd annual presentation of hospital data by the Council on Medical Education and Hospitals of the American Medical Association.[1] Data for the "day of reporting" were requested instead of data for the entire year of 1953 in order to reduce the clerical work of the hospital staff. Most of the replies were for a day in the last quarter of 1953. It would be difficult, however, to explain the small excess of 61,805 in the average daily census of the 6,539 replying hospitals (1,268,397) over the number of patients on the "day of reporting" (1,206,592). To that extent our cross section of data for the "day of reporting" deviated from the average daily census. It is unlikely that the average daily census would precisely equal the total number of patients in 6,539 hospitals on a specific day in a specific month. The ideal survey would have included the age, sex, diagnosis, and treatment of every one of the 19,869,000 persons admitted to the 6,840 registered hospitals during 1953. The age and sex of these patients would have enabled us to compute the total patient days for males and females in each of the four age groups.

As shown in the totals in columns 15 and 16 of tables 1 and 2, there were 77,720 more male patients than female patients in the 6,539 replying hospitals of all types. The percentage of males was 53.2. Since the numbers of patients in the 301 hospitals that did not give the data for the four items on the schedule are merely estimates, they have been added to the totals for the hospitals that did respond but have been excluded from the percentage distributions of all tables. The excess of male patients was a surprise, as voluntary health insurance plans show greater utilization of hospitals by females than by males. We sought the answer in the age breakdowns. The totals by age and sex for the 6,539 hospitals are given below.

Age Group (1)	Males (2)	Females (3)	Total (4)	Excess Males (5)
14 and under	51,276	39,923	91,199	11,353
15-44	253,170	239,937	493,107	13,233
45-64	213,415	162,230	375,645	51,185
65 and over	124,295	122,346	246,641	1,949
Totals	642,156	564,436	1,206,592	77,720

As noted in the totals at the bottom of tables 1 and 2, the number of boys under 15 years of age was more than 11,000 greater than the number of girls. Even in the childbearing period of life, ages 15-44, the excess of male patients was over 13,000. (One-sixth of all persons admitted to hospitals in the United States during 1953 were expectant mothers.) At ages 45-64, the excess of males was over 51,000, but in the age group 65 and over the excess was less than 2,000. The absence of data on the age and the sex of all persons admitted to hospitals during 1953 makes it impossible for us to determine how much of the excess of males on the "day of reporting" was due to their greater average length of stay and how much to a greater number of male admissions. We only know that the "day of reporting" was not far from an average day for our universe of hospitals and that, accordingly, there were probably more male patients than female on every other day during 1953; but the number of different persons in each age and sex classification is not known.

HOSPITALS BY TYPE OF SERVICE

Since there was an excess of male patients in each of the four age groups the explanation then was sought in the age and sex distribution of patients in a twofold classification of hospitals. As has been done for many years in the presentation of hospital data, the hospitals (and patients) were classified by 12 types of service in four tables (1, 3, 5, and 7) and then by 16 types of control in four tables (2, 4, 6, and 8). Table 1 presents some interesting sex and age data, especially for the three largest classifications. The excess of males—excess of females in row 4 only—in the 12 service types of hospitals was as follows:

Row Number	Type of Service	Excess Males	Excess Females
1	General	13,556	.....
2	Nervous and mental	36,604	.....
3	Tuberculosis	20,819	.....
	3a Subtotal	**70,979**	.....
4	Maternity	.....	2,444
5	Industrial	1,614	.....
6	Eye, ear, nose, and throat	104	.....
7	Children's	453	.....
8	Orthopedic	177	.....
9	Isolation	160	.....
10	Convalescent and rest	101	.....
11	Institutions	6,266	.....
12	All other	310	.....
	Known total	**80,164**	**2,444**
		— 2,444	
	Excess of males	**77,720**	
	301 hospitals	3,931	

Even in general hospitals, which admit 94 out of every 100 patients, there were 13,556 more male patients than female patients. A general hospital can be defined negatively as one that does not limit its patients to one special diagnostic class. There was an excess of female patients (15,000) in the age group 15-44 in the general hospitals, although 98% of all hospital births (column 19) were in general hospitals. There was also an excess of 36,604 males in the nervous and mental hospitals. (They occupy approximately half of the nation's hospital beds but represent a small proportion of the total admissions.) These hospitals reported an excess of 3,880 males in the age group 14 and under, an excess of 24,184 males in the age group 15-44, an excess of 15,198 in the age group 45-64, and an excess of 6,658 females in the age group 65 and over. There was an excess of 20,819 males in the tuberculosis hospitals. In the age group

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Because of space limitations, tables 3 and 4 and the five tables in the appendix have been omitted from THE JOURNAL and will appear in the reprint. A copy of the reprint, Bulletin 97, may be obtained from the Bureau of Medical Economic Research, American Medical Association.

1. Hospital Service in the United States, report of the Council on Medical Education and Hospitals, J. A. M. A. **155**: 255-278 (May 15) 1954.

14 and under, however, there was an excess of 122 females; the excess of males was 3,649 in the age group 15-44, 13,972 in the age group 45-64, and 3,320 in the age group 65 and over.

Subtotals for these three types of hospitals (table 1), which comprised 5,847 of the 6,539 hospitals that replied to the questions on age and sex, reveal a total excess of 70,979 males: 10,246 in the age group 14 and under, 12,656 in the age group 15-44, 47,805 in the age group 45-64, and only 272 in the age group 65 and over. In the remaining nine groups of hospitals classified by type of service (table 1), there was an excess of females only in maternity hospitals. Those readers who are inclined to equate "general hospitals" with "hospitals" may want to examine these traditional classifications of hospitals in one or more of the annual reports on hospitals of the Council on Medical Education and Hospitals.[1] Federal, other governmental, and nongovernmental general hospitals differ in some respects; for example, in the proportion of psychiatric patients.

It should be noted that the estimate at the bottom of table 1 was 61,027 patients for the 301 hospitals that answered the other questions on the hospital schedule but did not answer the questions on age and sex distribution. This estimate was based on the proportion of the reported average daily census of the 301 hospitals (64,154) to the average daily census of the remaining 6,539 hospitals (1,268,397) that did answer the questions on age and sex. This proportion, 5.06%, was applied to the totals of columns 3 to 17 in tables 1 and 2 for the purpose of estimating the age and sex distribution of the estimated 61,027 patients in the 301 hospitals. Table A of the appendix classifies these 301

TABLE 1.—*Age and Sex Distribution of Patients*

Row Number	Type of Service (1)	Number of Hospitals (2)	Age 14 and Under			Ages 15-44			Ages 45-64		
			Male (3)	Female (4)	Total (5)	Male (6)	Female (7)	Total (8)	Male (9)	Female (10)	Total (11)
1	General	4,887	28,557	22,069	50,626	103,574	118,751	222,325	75,303	56,668	131,971
2	Nervous and mental	556	14,704	10,824	25,528	123,635	99,451	223,086	111,423	96,225	207,648
3	Tuberculosis	404	1,572	1,694	3,266	19,311	15,662	34,973	18,660	4,638	23,348
	3a Subtotal (1-3)	**5,847**	**44,833**	**34,587**	**79,420**	**246,520**	**233,864**	**480,384**	**205,386**	**157,581**	**362,967**
4	Maternity	76	273	261	534	535	2,918	3,453	194	266	460
5	Industrial	31	20	17	37	613	123	736	886	112	998
6	Eye, ear, nose, and throat	45	188	135	323	176	192	368	282	190	472
7	Children's	45	2,174	1,659	3,833	43	106	149	86	73	159
8	Orthopedic	91	2,311	2,046	4,357	552	499	1,051	108	161	269
9	Isolation	26	374	298	672	178	194	372	169	63	232
10	Convalescent and rest	145	497	461	958	559	416	975	1,149	839	1,988
11	Institutions	141	108	75	183	2,876	453	3,329	2,546	635	3,181
12	All other	92	498	384	882	1,118	1,172	2,290	2,609	2,310	4,919
	12a Subtotal (4-12)	**692**	**6,443**	**5,336**	**11,779**	**6,650**	**6,073**	**12,723**	**8,029**	**4,649**	**12,678**
	Known total	**6,539**	**51,276**	**39,923**	**91,199**	**253,170**	**239,937**	**493,107**	**213,415**	**162,230**	**375,645**
	Estimate for 301 nonreplying hospitals *	301	2,593	2,019	4,612‡	12,805	12,136	24,941	10,794	8,205	18,999‡
	National total	6,840	53,869	41,942	95,811	265,975	252,073	518,048	224,209	170,435	394,644
	United States population (000's) †	...	23,148	22,275	45,423	33,977	34,574	68,550	15,994	16,337	32,333

* Based on average daily census of the 301 hospitals which did not reply to questions.
‡ Forced. § Reported, not estimated.

TABLE 2.—*Age and Sex Distribution of Patients*

Row Number	Type of Control (1)	Number of Hospitals (2)	Age 14 and Under			Ages 15-44			Ages 45-64		
			Male (3)	Female (4)	Total (5)	Male (6)	Female (7)	Total (8)	Male (9)	Female (10)	Total (11)
1	U. S. Army	59	361	230	591	15,432	2,136	17,568	753	211	964
2	U. S. A. F.	36	111	59	170	3,999	885	4,884	159	39	198
3	U. S. N.	35	200	149	349	12,769	1,551	14,320	1,212	148	1,360
4	U. S. Public Health Service	34	23	24	47	3,119	392	3,511	1,979	174	2,153
5	Veterans Administration	166	...	...	...	46,441	979	47,420	45,102	365	45,467
6	Indian Affairs	52	312	329	641	412	712	1,124	155	161	316
7	Other federal	8	41	31	72	755	184	939	250	33	283
	7a Federal subtotal	**390**	**1,048**	**822**	**1,870**	**82,927**	**6,839**	**89,766**	**49,610**	**1,131**	**50,741**
8	State	519	16,716	12,559	29,275	107,229	104,718	211,947	95,884	96,127	192,011
9	County	680	3,204	2,546	5,750	11,092	15,405	26,497	14,254	8,873	23,127
10	City	375	2,704	2,022	4,726	6,700	9,792	16,492	7,978	4,872	12,850
11	City-county	79	507	324	831	1,113	1,946	3,059	1,272	844	2,116
	11a Other governmental subtotal	**1,653**	**23,131**	**17,451**	**40,582**	**126,134**	**131,861**	**257,995**	**119,388**	**110,716**	**230,104**
12	Church	1,138	12,282	9,641	21,923	18,834	44,792	63,626	17,267	20,944	38,211
13	Nonprofit associations	2,141	12,936	10,340	23,276	20,764	47,592	68,356	22,818	24,294	47,112
14	Individual	547	848	858	1,706	1,238	2,703	3,941	1,242	1,608	2,850
15	Partnership	276	394	282	676	922	1,836	2,758	814	942	1,756
16	Corporation	394	637	529	1,166	2,351	4,314	6,665	2,276	2,595	4,871
	16a Nongovernmental subtotal	**4,496**	**27,097**	**21,650**	**48,747**	**44,109**	**101,237**	**145,346**	**44,417**	**50,383**	**94,800**
	Known total	**6,539**	**51,276**	**39,923**	**91,199**	**253,170**	**239,937**	**493,107**	**213,415**	**162,230**	**375,645**
	Estimate for 301 nonreplying hospitals*	301	2,593	2,019	4,612‡	12,805	12,136	24,941	10,794	8,205	18,999‡
	National total	6,840	53,869	41,942	95,811	265,975	252,073	518,048	224,209	170,435	394,644
	U. S. population (000's)†	...	23,148	22,275	45,423	33,977	34,574	68,550	15,994	16,337	32,333

* Based on average daily census of the 301 hospitals which did not reply to questions.
‡ Forced. § Reported, not estimated.

hospitals by type of service and table B by type of control. They give the number of beds, number of admissions, and average daily census for these nonreplying hospitals. These estimated 61,027 patients were not allocated to classes of hospitals. Thus, the grand total of patients in the survey was 1,267,619. Comments are limited to the reported totals exclusive of the estimates for the 301 hospitals, that is, on the 642,156 male patients and the 564,436 female patients in the 6,539 hospitals late in 1953, or on the excess of 77,720 males. In order to provide some perspective, the bottom row in table 1 shows the estimated United States population for July, 1953, distributed by sex among the four age groups. The last eight columns provide basic descriptive data on number of beds, births, and admissions and the average daily census.

Percentage Excess of Males.—For the convenience of those readers who prefer percentages, the numbers in table 1 have been converted in table 3 into three sets of percentages for each of the 12 service classes of hospitals, two subtotals, and for all hospitals. It shows that 53.2% of total patients were males and 46.8% were females; only 50.3% of the entire population of the United States were females. The percentage of male patients in each of the four age groups was more than 50: 56.2, 51.3, 56.8, and 50.4. On the other hand, males in the age group 14 and under comprised 4.2% of total patients; 21% of the total patients were males in the age group 15-44, 17.7% in the age group 45-64, and 10.3% in the age group 65 and over. The corresponding percentages of total patients who were females in each of the four age groups were 3.3, 19.9, 13.5, and 10.1.

in Hospitals Classified by Type of Service

Age 65 and Over			Total Patients			Number of Beds		Number of Births		Number of Admissions		Average Daily Census	
Male (12)	Female (13)	Total (14)	Male (15)	Female (16)	Total (17)	(18)	(18a)	(19)	(19a)	(20)	(20a)	(21)	(21a)
46,823	43,213	90,036	254,257	240,701	494,958	629,782	41.9	3,138,477	97.6	18,133,031	94.1	459,276	36.2
59,499	66,157	125,656	309,261	272,657	581,918	707,944	47.2	831	‖	314,908	1.6	677,366	53.4
5,396	2,076	7,472	44,939	24,120	69,059	85,666	5.7	4,801	0.1	105,118	0.5	72,473	5.7
111,718	**111,446**	**223,164**	**608,457**	**537,478**	**1,145,935**	**1,423,392**	**94.8**	**3,144,109**	**97.7‡**	**18,553,057**	**96.2‡**	**1,209,315**	**95.3**
156	157	313	1,158	3,602	4,760	5,599	0.4	60,589	2.1	88,182	0.5	4,043	0.3
396	49	445	1,915	301	2,216	3,011	0.2	1	‖	68,649	0.4	1,999	0.2
177	202	379	823	719	1,542	2,404	0.1‡	.....	...	109,014	0.6	1,407	0.1
.....	12	12	2,303	1,850	4,153	5,583	0.4	2,255	0.1	159,799	0.8	3,832	0.3
28	116	144	2,999	2,822	5,821	7,427	0.5	.....	...	41,109	0.2	5,458	0.4
53	59	112	774	614	1,388	3,454	0.2	16	‖	24,795	0.1	1,656	0.1
2,042	2,430	4,472	4,247	4,146	8,393	11,733	0.8	.....	...	34,783	0.2	9,296	0.8‡
4,816	2,917	7,733	10,346	4,080	14,426	19,275	1.3	17	‖	114,872	0.6	13,959	1.1
4,909	4,958	9,867	9,134	8,824	17,958	19,542	1.3	3,054	0.1	69,174	0.4	17,432	1.4
12,577	**10,900**	**23,477**	**33,699**	**26,958**	**60,657**	**78,028**	**5.2**	**71,932**	**2.3**	**710,377**	**3.8‡**	**59,082**	**4.7**
124,295	**122,346**	**246,641**	**642,156**	**564,436**	**1,206,592**	**1,501,420**	**100**	**3,216,041**	**100**	**19,263,434**	**100**	**1,268,397**	**100**
6,287	6,188	12,475	32,479	28,548	61,027	71,594§	—	91,141§	—	605,627§	—	64,154§	—
130,582	128,534	259,116	674,635	592,984	1,267,619	1,573,014		3,307,182		19,869,061		1,332,551	
6,236	7,088	13,324	79,354	80,274	159,629								

† For July, 1953; U. S. Dept. of Commerce, P-25 #93, Population Estimates.
‖ Less than 0.1%.

in Hospitals Classified by Type of Control

Age 65 and Over			Total Patients			Number of Beds		Number of Births		Number of Admissions		Average Daily Census	
Male (12)	Female (13)	Total (14)	Male (15)	Female (16)	Total (17)	(18)	(18a)	(19)	(19a)	(20)	(20a)	(21)	(21a)
107	50	157	16,653	2,627	19,280	27,894	1.9	49,984	1.6	389,418	2.0	19,989	1.6
13	11	24	4,282	994	5,276	9,904	0.7	30,701	1.0	188,743	1.0	6,445	0.5
276	37	313	14,457	1,885	16,342	24,482	1.6	46,879	1.5	281,011	1.5	17,931	1.4
436	44	480	5,557	634	6,191	8,264	0.5‡	1,231	‖	65,152	0.3	6,376	0.5
8,534	128	8,662	100,077	1,472	101,549	118,783	7.9	2	‖	477,861	2.5	98,582	7.8
92	74	166	971	1,276	2,247	2,845	0.2	5,962	0.2	42,176	0.2	1,846	0.1
299	20	319	1,345	268	1,613	8,268	0.6	3,050	0.1	15,555	0.1	8,650	0.7
9,757	**364**	**10,121**	**143,342**	**9,156**	**152,498**	**200,440**	**13.4**	**137,809**	**4.4‡**	**1,459,916**	**7.6**	**159,819**	**12.6**
57,717	63,866	121,583	277,546	277,270	554,816	675,166	44.9‡	69,619	2.2	713,902	3.7	638,366	50.3
13,301	10,101	23,402	41,851	36,925	78,776	101,621	6.8	216,110	6.7	1,322,477	6.9	79,292	6.2‡
7,512	5,604	13,116	24,894	22,290	47,184	68,581	4.6	197,573	6.1	1,242,649	6.4‡	56,526	4.5
1,709	1,128	2,837	4,601	4,242	8,843	10,631	0.7	48,651	1.5	255,220	1.3	7,788	0.6
80,239	**80,699**	**160,938**	**348,892**	**340,727**	**689,619**	**855,999**	**57.0**	**531,953**	**16.5**	**3,534,248**	**18.3**	**781,972**	**61.6**
13,313	15,726	29,039	61,696	91,103	152,799	160,110	10.6‡	1,055,003	32.8	5,555,234	28.8	120,449	9.5
17,196	20,040	37,236	73,714	102,266	175,980	236,732	15.8	1,265,448	39.3	7,292,352	37.8‡	174,021	13.7
1,402	1,950	3,352	4,730	7,119	11,849	14,642	1.0	70,832	2.2	396,382	2.1	8,715	0.7
711	1,051	1,762	2,841	4,111	6,952	9,332	0.6	44,554	1.4	319,475	1.7	5,839	0.5
1,677	2,516	4,193	6,941	9,954	16,895	24,165	1.6	110,442	3.4	705,827	3.7	17,582	1.4
34,299	**41,283**	**75,582**	**149,922**	**214,553**	**364,475**	**444,981**	**29.6**	**2,546,279**	**79.1‡**	**14,269,270**	**74.1**	**326,606**	**25.8**
124,295	**122,346**	**246,641**	**642,156**	**564,436**	**1,206,592**	**1,501,420**	**100**	**3,216,041**	**100**	**19,263,434**	**100**	**1,268,397**	**100**
6,287	6,188	12,475	32,479	28,548	61,027	71,594§	—	91,141§	—	605,627§	—	64,154§	—
130,582	128,534	259,116	674,635	592,984	1,267,619	1,573,014		3,307,182		19,869,061		1,332,551	
6,236	7,088	13,324	79,354	80,274	159,629								

† For July, 1953; U. S. Dept. of Commerce, P-25 #93, Population Estimates.
‖ Less than 0.1%.

Moreover, 8% of the universe of male patients were age 14 and under; 39.4% were in the age group 15-44, 33.2% in the age group 45-64, and 19.4% in the age group 65 and over. The corresponding percentages of total female patients were 7.1 in the age group 14 and under, 42.5 in the age group 15-44, 28.7 in the age group 45-64, and 21.7 in the age group 65 and over. No comment will be made on the patients in the smaller classes of hospitals, nor on the subtotals. The percentages for each of the first three classes and the subtotals will be contrasted with the corresponding percentages for all hospitals (at the bottom of table 3).

General Hospitals.—In general hospitals, the percentage of females in the age group 15-44 was 53.4 (a sex ratio); in the other three age groups and totals the percentage of females was less than 50: 43.6, 42.9, 48, and 48.6. The percentage of females in all hospitals was 43.8 in the age group 14 and under; 48.7, 43.2, and 49.6 in the three older age groups; and only 46.8 of all patients. The percentage of total patients in general hospitals was relatively high (as compared with all hospitals) in the age group 14 and under (10.3 versus 7.5 in all hospitals), relatively high (44.9 versus 40.9) in the age group 15-44, relatively low (26.6 versus 31.2) in the age group 45-64, and relatively low (18.2 versus 20.4) in the age group 65 and over. Moreover, females as has been noted for general hospitals. The sex ratio for males was, accordingly, highest (57.6) in the age group 14 and under and lowest in the age group 65 and over. Considering both sexes, only 4.4% of the total patients in nervous and mental institutions were in the age group 14 and under as compared with 10.3% in general hospitals and 7.5% in all hospitals. Thus the age distribution of patients in nervous and mental hospitals was skewed toward the higher ages. Also, 21.6% of all patients in nervous and mental hospitals were in the age group 65 and over as compared with only 18.2% in general hospitals and 20.4% in all hospitals. The percentage of all male patients who were under 15 years of age and the corresponding percentages for females were lower in nervous and mental hospitals than in all hospitals: 4.8 versus 8 for males and 4 versus 7.1 for females. Only 36.5% of all female patients in nervous and mental hospitals were in the age group 15-44, whereas the corresponding percentages for all hospitals was 42.5 and for general hospitals, 49.3. Conversely, the percentage of all female patients in nervous and mental hospitals in the age group 45-64 (35.3) was considerably higher than the counterpart for all hospitals (28.7) and far higher than the counterpart for general hospitals (23.5). Moreover, the percentage of all female patients in nervous and mental hospitals who were in the age group 65 and over (24.2)

TABLE 5.—*Percentage of Total Male and Total Female Patients in Each Age Group in Hospitals Classified by Type of Service*

Row Number	Type of Service (1)	Age 14 and Under			Ages 15-44			Ages 45-64			Age 65 and Over			Total Patients			Number of Beds (17)	Number of Births (18)	Number of Admissions (19)	Average Daily Census (20)
		Male (2)	Female (3)	Total (4)	Male (5)	Female (6)	Total (7)	Male (8)	Female (9)	Total (10)	Male (11)	Female (12)	Total (13)	Male (14)	Female (15)	Total (16)				
1	General	55.7	55.3	55.5	40.9	49.5	45.1	35.3	34.9	35.1	37.7	35.3	36.5	39.6	42.7†	41.0	41.9	97.6	94.1	36.2
2	Nervous and mental	28.7	27.1	28.0	48.8	41.4	45.2	52.2	59.3	55.3	47.9	54.1	50.9	48.2	48.3	48.2	47.2	*	1.6	53.4
3	Tuberculosis	3.1	4.2	3.6	7.6	6.5	7.1	8.8†	2.9	6.2	4.3	1.7	3.0	7.0	4.3	5.7	5.7	0.1	0.5	5.7
	3a Subtotal (1-3)	**87.5**	**86.6**	**87.1**	**97.3**	**97.4**	**97.4**	**96.3**	**97.1**	**96.6**	**89.9**	**91.1**	**90.4**	**94.8**	**95.3**	**94.9**	**94.8**	**97.7**	**96.2†**	**95.3**
4	Maternity	0.5	0.7	0.6	0.2	1.2	0.7	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.6	0.4	0.4	2.1	0.5	0.3
5	Industrial	*	*	*	0.2	0.1	0.1	0.4	0.1	0.3	0.3	*	0.2	0.3	0.1	0.2	0.2	*	0.4	0.2
6	Eye, ear, nose, and throat	0.4	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1†	...	0.6	0.1
7	Children's	4.2	4.1	4.2	*	*	*	*	*	*	...	*	*	0.3†	0.3	0.4†	0.4	0.1	0.8	0.3
8	Orthopedic	4.5	5.1	4.8	0.2	0.2	0.2	0.1	0.1	0.1	*	0.1	0.1	0.5	0.5	0.5	0.5	...	0.2	0.4
9	Isolation	0.7	0.8†	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1†	*	0.1†	0.1	0.1	0.1	0.2	*	0.1	0.1
10	Convalescent and rest	1.0	1.2	1.0	0.2	0.2	0.2	0.5	0.5	0.5	1.6	2.0	1.6	0.7	0.7	0.7	0.8	...	0.2	0.8†
11	Institutions	0.2	0.2	0.2	1.2†	0.2	0.7	1.2	0.4	0.9†	3.9	2.4	3.1	1.6	0.7	1.2	1.3	*	0.6	1.1
12	All other	1.0	1.0	1.0	0.5†	0.5	0.5	1.2	1.4	1.3	4.0	4.1	4.0	1.4	1.6	1.5	1.3	0.1	0.4	1.4
	12a Subtotal (4-12)	**12.5**	**13.4**	**12.9**	**2.7**	**2.6**	**2.6**	**3.7**	**2.9**	**3.4**	**10.1**	**8.9**	**9.6**	**5.2**	**4.7**	**5.1**	**5.2**	**2.3**	**3.8†**	**4.7**
	Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* Less than 0.1%. † Forced to total 100%.

general hospitals differed from all hospitals rather significantly in the percentage of total patients of each sex in each of the four age groups. The percentage of males was relatively high in the age group 14 and under (11.2 versus 8), only slightly above the over-all percentage in the age group 15-44 (40.8 versus 39.4), relatively low in the age group 45-64 (29.6 versus 33.2), and only slightly lower than the over-all percentage in the age group 65 and over (18.4 versus 19.4). The percentage of female patients in general hospitals in the age group 14 and under was also relatively high (9.2 versus 7.1), markedly higher in the age group 15-44 (49.3 versus 42.5), relatively low in the age group 45-64 (23.5 versus 28.7), and relatively low in the age group 65 and over (18 versus 21.7). The highest percentages of both male and female patients in general hospitals were in the age group 15-44, but the percentage for females, 49.3, was decidedly more than the percentage for males, 40.8, doubtless a characteristic of the childbearing period of life.

Nervous and Mental Hospitals.—The sex percentage in each age group, the percentage of total patients by sex in each age group, and the percentage of the total for each sex in each age group present a far different picture for nervous and mental hospitals (section 2 of table 3). First, only 46.9% of the patients were females—nearly the same as the percentage for all hospitals; this compared with 46.8% of all the patients in general hospitals. The female percentage in each age group in nervous and mental hospitals rose with increasing age: 42.4, 44.6, 46.3, and 52.6. In other words, there was no decided peak in the sex ratio for was somewhat higher than the counterpart for all hospitals (21.7) and considerably higher than the counterpart for general hospitals (18.0).

Tuberculosis Hospitals.—The outstanding feature of the percentage distribution of patients in tuberculosis hospitals was the sex ratio of 65.1 males and only 34.9 females, as compared with 53.2 and 46.8 in all hospitals. For the four age groups the male percentages were 48.1, 55.2, 79.9, and 72.2. As might have been expected, one-half (50.7%) of all patients in tuberculosis hospitals were in the age group 15-44 and one-third (33.8%) in the age group 45-64. On the other hand, 64.9% of the female patients and only 43% of the male patients were in the age group 15-44. Comparisons with general hospitals and with all hospitals are omitted because the sex ratio was so very different for tuberculosis hospitals. The subtotals of the numbers in the first three rows of table 1 for general, nervous and mental, and tuberculosis hospitals account for an overwhelming percentage of the totals for all hospitals and, conversely, the subtotals for rows 4-12 account for a very small portion of the totals. It follows, therefore, that subtotals 1-3 when converted into percentages (in table 5) are about the same as the percentages for all hospitals. On the other hand, the percentages in subtotals 4-12 will be quite different from percentages for all hospitals. But before discussing the second set of subtotals a few highlights of rows 4-12 are worth noting. The percentage of females was obviously high in maternity hospitals (75.7) and the percentage of males high in industrial hospitals (86.4). In children's hospitals, 56.7% of the

patients under 15 years of age were males and 92.3% of the total patients were under 15 years of age. In the convalescent and rest hospitals 53.3% of the patients were in the age group 65 and over and 53.6% in the hospital departments of institutions (labeled institutions in some tables).

The high percentage of males, 55.6, is the outstanding feature of the subtotals (rows 4-12) for the other hospitals. The percentages of males in the four age groups were 54.7, 52.3, 63.3, and 53.6. For all hospitals only 56.8% of the patients in the age group 45-64 were males. The percentages of total patients in each of the four age groups in the nine classes of hospitals represented by the subtotals 4-12 and in all hospitals differ sharply: 19.4 versus 7.5, 21 versus 40.9, 20.9 versus 31.2, and 38.7 versus 20.4. In these nine classes of hospitals combined, approximately two-fifths of the patients were in the age group 65 and over and one-fifth in each of the three younger age groups. On the other hand, almost two-fifths of the patients in all hospitals were in the age group 15-44, one-third in the age group 45-64, and only one-fifth in the age group 65 and over, but less than one-tenth in the age group 14 and under.

Percentages of Totals.—In table 5 the numbers in each row of table 1 are expressed as percentages of their column total for the 6,539 hospitals. For example, the 28,557 males under age 15 in general hospitals comprised 55.7% of the total males, 51,276, under age 15 in all 12 types of hospitals classified by type of service. Perhaps the highlight of this table is found in columns 2 and 3, namely, that in the age group 14 and under 55.7% of the males and 55.3% of the females were in general hospitals and 28.7% of the males and 27.1% of the females were in nervous and mental hospitals. It was a surprise to find that 28% of all the children under 15 years of age were in nervous and mental hospitals; we had predicted about 10%. It was not so surprising to find that 50.9% of the patients in the age group 65 and over were in nervous and mental institutions or that their share of the patients was the same as the share for general hospitals in the age group 15-44 (45.2% versus 45.1%) and larger in the age group 45-64 (55.3% and 35.1%). Another highlight of this table is that 59.3% of the females and only 52.2% of the males in the age group 45-64 were in nervous and mental institutions. Of all patients 41% (39.6% of the males and 42.7% of the females) were in general hospitals, 48.2% (48.2% of the males and 48.3% of the females) in nervous and mental, and 5.7% (7% of the males and 4.3% of the females) in tuberculosis hospitals; the corresponding percentages of the 6,539 hospitals by count (not shown in table 5) were 74.7, 8.5, and 6.2.

Hospital Incidence Rates.—In the entire population of the United States as of July 1, 1953, females (50.3% versus 49.7% of the estimated population) outnumbered males slightly—80,274,000 versus 79,354,000 (see bottom row of table 1). Table 7 takes into consideration the total number of potential patients for each sex in each age group. The number of patients per 100,000 males and per 100,000 females in each age group might be called the "hospital incidence rate." For example, the 28,557 males in the age group 14 and under in general hospitals were at the rate of 123 per 100,000 males (0.123%). In the 6,539 hospitals, the number of male patients in the age group 14 and under was 222 per 100,000 population. Although the total for the 301 nonreplying hospitals is only an estimate, it is worth noting that there were 11 additional males in the age group 14 and under per 100,000, or a national total of 233 per 100,000. On the other hand, there were only 179 females per 100,000 females in the age group 14 and under and there were 201 children per 100,000 in the general population under 15 years of age. In both general and nervous and mental hospitals the incidence rate increased with age. It also increased with age for all hospitals. In tuberculosis hospitals, the incidence rate was higher for the age group 45-64 than for the two younger age groups, but it was lower for the age group 65 and over; and the top incidence rate for females, 45, was for the age group 15-44. The over-all incidence rates for all hospitals were 809 for 79,354,000 males, 703 for 80,274,000 females, and 756 for both sexes. Of the latter, the incidence rate (for 159,629,000) was 310 for general hospitals, 365 for nervous and mental hospitals, 43 for tuberculosis hospitals, and 38 for the nine classes of nongovernmental hospitals (rows 4-12). The incidence rates in the 15 columns of table 7 will probably be of limited use to actuaries in computing pure premiums for hospital insurance because they provide no information on the duration of the hospital stay. Moreover, most forms of hospital insurance do not provide for patients in nervous and mental or tuberculosis hospitals. Fewer males having an average stay of many more days than females could explain the excess of males on a particular day.

HOSPITALS BY TYPE OF CONTROL

In the search for the explanation of the excess of male patients, the foregoing examination of the data for hospitals classified by type of service was not very rewarding. We now turn to the age and sex distribution of patients in hospitals classified by type of control; these data are given in tables 2, 4, 6, and 8. These two classifications of hospitals can be most sharply defined by examining the symbols in the list of hospitals by name.[1] In many instances the officials of the hospital suggested the classification. Doubtless many of these hospitals have altered to a small degree the type of patients that they originally planned to admit. The column totals in table 2 are obviously the same as in table 1. Again, the excess of males was 77,720. The excess of males or females in each of the 16 classes of hospitals classified by type of control was:

Row Number	Type of Control	Excess Males	Excess Females
1	U. S. Army	14,026	.....
2	U. S. A. F.	3,288	.....
3	U. S. N.	12,572	.....
4	United States Public Health Service	4,923	.....
5	Veterans Administration	98,605	.....
6	Indian Affairs	.....	305
7	Other federal	1,077	.....
	7a Subtotal 1-7	**134,491**	**305**
8	State	276	.....
9	County	4,926	.....
10	City	2,604	.....
11	City-county	359	.....
	11a Subtotal 8-11	**8,165**	
12	Church	.....	29,407
13	Nonprofit associations	.....	28,552
14	Individual	.....	2,389
15	Partnership	.....	1,270
16	Corporation	.....	3,013
	16a Subtotal 12-16	.....	**64,631**
	Totals	**142,656**	**64,936**
		— 64,936	
	Excess of males	**77,720**	

The subtotals for the 390 federal hospitals (rows 1-7, table 2) indicate an excess of 134,186 males. In the remaining 6,149 hospitals (rows 8-16) there was an excess of 56,466 females.

It is obvious, then, that the classification of hospitals by type of control provides a better clue to the explanation of the excess of 77,720 males, for it is in the federal hospitals that the excess of males is so pronounced. In the military hospitals (rows 1-3) it would be expected that males would greatly outnumber females, although many of these military hospitals accept the dependents of service personnel as patients. They had an excess of 29,886 males (35,392–5,506). It is worth noting that 4,572 of the 5,506 females in these three classes of military hospitals were in the childbearing period of life. It should be remembered that in military hospitals the man in service is not discharged until declared fit for active duty; that is, usually the time spent in a military hospital for a particular condition would exceed comparable time in a nonmilitary hospital—ambulatory patients become bed patients. This factor obviously would tend to increase the number of patients; and since most of them are male patients, the excess of males. The average length of stay per patient (average daily census times 365 divided by total admissions) in the 5,087 general hospitals of the 6,840 hospitals in 1953, classified according to ownership or control, definitely establishes the longer stay in federal hospitals and indicates the lack of homogeneity in the term "general hospital."[1] The average stay for 1953 was: federal, 23.6 days; state, 14.8 days; county, 11.2 days; city, 11.5 days; city-county, 8.8 days; all governmental general, 15.1 days; church, 7.5 days; other nonprofit

associations, 7.6 days; all nonprofit general hospitals, 7.6 days; all proprietary general hospitals, 5.6 days; all nongovernmental general, 7.4 days; and all general hospitals, 9.3 days.

Cross Classifications.—At this point, it seems desirable to interrupt the discussions of the second quartet of tables with some general tables regarding the interrelationships between the two classifications of hospitals. Each of the 16 classes of hospitals by type of control will be cross classified by type of service in the appendix tables C and D of the reprint of this article. Number of hospitals in each cross classification may be summarized as follows: the 130 Army, Air Force, and Navy hospitals were general hospitals; 14 of the 34 United States Public Health Service hospitals were general, and 16 were hospital departments of institutions; 107 of the 166 Veterans Administration hospitals were general hospitals, and 38 were nervous and mental; 45 of the 52 Indian Affairs hospitals were general hospitals; 266 of the 519 state hospitals were nervous and mental hospitals, 55 were general, and 93 were tuberculosis; 463 of the 680 county hospitals were general, 29 were nervous and mental, and 157 were tuberculosis; 313 of the 375 city hospitals were general, and 24 were tuberculosis; 69 of the 79 city-county hospitals were general; 1,025 of the 1,138 church hospitals were general; 1,744 of the 2,141 nonprofit hospitals were general, and the remaining 400 were rather well distributed among the other types of hospitals; 432 of the 547 individual (owned) hospitals were general, and 47 were nervous and mental; 225 of the 276 partnership hospitals were general; 262 of the 394 corporation hospitals were general and 84 were nervous and mental. Two tables of this type (2A and 2B), but without breakdowns on age and sex, are presented and the three major cross classification tables (C, D, and E) with breakdowns by age and sex are given in the appendix to the reprint. Each of the 16 control classes of hospitals are cross classified in table C in terms of numbers of patients by age and sex for each of the 12 service types of hospitals. Table D presents a partial reverse cross classification, that is, the patients in general, nervous and mental, and tuberculosis hospitals are cross classified by age and sex for the 16 control types. Table E differs from tables C and D in two respects: the data are percentages of the 1,206,592 patients; the cross classification is for only three groupings of hospitals by type of service and only six groupings of hospitals by type of control in order to avoid extremely small percentages.

The row titles of tables 2A and 2B are the same as in table 2. Since only 10.8% of the patients were in hospitals other than general and nervous and mental, it seemed advisable to present only three columns in each of these two tables. More than half (5.7% of the grand total) of these patients were in tuberculosis hospitals and the remaining 5.1% of the grand total were scattered. Some cross classifications involving tuberculosis hospitals as a separate category are presented in appendix tables C and D. The percentages of patients in governmental general hospitals (column 2, table 2A), were: 3.9 in U. S. Army hospitals, 9 in hospitals of the Veterans Administration, 18.4 in all federal hospitals, 7.7 in county hospitals, and 18.6 in other governmental (state and local) hospitals. The two largest groups of patients in general hospitals were in church hospitals, 29.2%, and in nonprofit hospitals, 29%; in fact, 63% of all the patients in general hospitals were in nongovernmental hospitals. These percentages showing the distribution of patients in general hospitals cross classified by type of control should help to clarify the data for general hospitals in other parts of this report. In column 3 we note that of the patients in all nervous and mental hospitals, 8.4% were in the nervous and mental hospitals of the Veterans Administration, 86.6% in state hospitals, and only 2.7% in all nongovernmental hospitals. These percentages should not obscure the fact that many general hospitals have psychiatric wards. (The 100% total of column 4 represents only 10.8% of all patients.) Only 8.5% of the patients in these other nine service types of hospitals were in federal hospitals; 28.4% were in nongovernmental and 63.1% in other governmental.

Reading across the rows of table 2B: 59.6% of the patients in federal hospitals were in general hospitals, 33.2% were in nervous and mental, and 7.2% were scattered among the other nine types of service hospitals; only 3% of the patients in state hospitals were in general hospitals, but 90.9% were in nervous and mental, and 6.1% were scattered among the other types of service hospitals; 85.6% of the patients in nongovernmental hospitals were in general hospitals, only 4.3% were in nervous and mental, and 10.1% were in the other nine types of service hospitals. Although not shown in tables 2B, 24.2% of the patients in county hospitals, 17.2% of the patients in city, and 15% of the patients in city-county hospitals were in tuberculosis hospitals. An annual report of the census of hospitals [1] and appendix tables C and D give additional data on cross classifications of hospitals. Moreover, the term general hospital is somewhat heterogeneous. Its dominant position in some of the measures of size in this study makes the classification of hospitals by type of service somewhat less precise than the classification by type of control.

TABLE 2A.—*Percentages of Patients in Hospitals, Cross Classified by Type of Control*

Row Number	Type of Control (1)	Type of Service: General Hospitals (2)	Nervous and Mental (3)	Others (3-12) (4)
1	U. S. Army	3.9	...	...
2	U. S. A. F.	1.1	...	...
3	U. S. N.	3.3	...	...
4	U. S. Public Health Service	0.7	0.3	0.8
5	Veterans Administration	9.0	8.4	6.2
6	Indian Affairs	0.3	...	0.6
7	Other federal	0.1	†	0.9
	7a Federal subtotal	**18.4**	**8.7**	**8.5**
8	State	3.4	86.6	26.1
9	County	7.7	2.0	22.6
10	City	6.4	†	11.9
11	City-county	1.1	...	2.5
	11a Other governmental subtotal	**18.6**	**88.6**	**63.1**
12	Church	29.2	0.4	4.4
13	Nonprofit associations	29.0	1.0	20.5
14	Individual	1.7	0.3	1.2
15	Partnership	1.0	0.2*	0.8
16	Corporation	2.1	0.8	1.5
	16a Nongovernmental subtotal	**63.0***	**2.7**	**28.4**
	Total	**100.0**	**100.0**	**100.0**

* Forced to total 100%.
† Less than 0.1%.

TABLE 2B.—*Percentages of Patients in Hospitals Cross Classified by Type of Service*

Row Number	Type of Control (1)	Type of Service: General (2)	Nervous and Mental (3)	Others (3-12) (4)	Total (5)
1	U. S. Army	100	....	....	100
2	U. S. A. F.	100	....	....	100
3	U. S. N.	100	....	....	100
4	U. S. Public Health Service	52.0	31.7	16.3	100
5	Veterans Administration	44.1	48.0	7.9	100
6	Indian Affairs	65.4*	....	34.6	100
7	Other federal	28.6	0.8*	70.6	100
	7a Federal subtotal	**59.6**	**33.2**	**7.2**	**100**
8	State	3.0	90.9	6.1	100
9	County	48.3*	14.6*	37.1	100
10	City	66.9	0.3	32.8	100
11	City-county	63.3*	....	36.7	100
	11a Other governmental subtotal	**13.4***	**74.8**	**11.8**	**100**
12	Church	94.7	1.6	3.7	100
13	Other nonprofit	81.6	3.3	15.1	100
14	Individual	70.9*	16.1	13.0	100
15	Partnership	74.4	11.1	14.5	100
16	Corporation	60.3	27.8	11.9	100
	16a Nongovernmental subtotal	**85.6**	**4.3**	**10.1**	**100**

* Forced to total 100%.

Veterans Hospitals.—The age and sex distribution of patients in Veterans Administration hospitals are cross classified by type of service in the tabulation below. Of the 166 veterans hospitals, 107 were classified as general (although many of them have large psychiatric wards), 38 as nervous and mental, and the remaining 21 as tuberculosis. As might be expected, there were no patients in the age group 14 and under and the number of

Type of Service (1)	Number of Hospitals (2)	Ages 15-44		Ages 45-64		Ages 65 and Over		Total Patients		
		Male (6)	Female (7)	Male (9)	Female (10)	Male (12)	Female (13)	Male (15)	Female (16)	Total (17)
General	107	20,440	330	19,132	155	4,674	58	44,246	543	44,789
Nervous and mental	38	21,688	580	22,787	193	3,439	66	47,914	839	48,753
Tuberculosis	21	4,313	69	3,183	17	421	4	7,917	90	8,007
Totals	166	46,441	979	45,102	365	8,534	128	100,077	1,472	101,549

females were so few in the other age groups that it is scarcely necessary to devote a column in each age group to the sum of males and females. Of the 101,549 patients in veterans hospitals late in 1953, 44,789 were in general, 48,753 in nervous and mental, and 8,007 in tuberculosis hospitals. The 98,605 excess of males in veterans hospitals was: 43,703 in general, 47,075 in nervous and mental, and 7,827 in tuberculosis hospitals. As already stated, the smaller excess of 30,000 males in military hospitals was not so surprising. But does this excess of males in the hospitals of the Veterans Administration actually explain the excess of male patients in all American hospitals included in this survey? It would on the rash assumption that these patients would not have been patients in other types of hospitals if there were no Veterans Administration hospitals. At best, it would provide a partial explanation to remember that in these 166 hospitals only about one-third of this group was hospitalized for service-connected disabilities resulting from military service and about two-thirds for disabilities not resulting from military service.

All percentages below were calculated from a set of tables submitted by the Reports and Statistics Service Department of Medicine and Surgery of the Veterans Administration to the American Medical Association. Source for the tables was VA Form 10-2593, Record of Hospitalization. The following percentages were computed from table 16 (Nov. 30, 1953). Of 109,964 total patients, 37.6% were under care for service-connected disabilities, 61.6% for non-service-connected care, and 0.8% were nonveterans. Percentages were also computed from table 4 (for the calendar year of 1952). These data and percentages are: service-connected, 75,226 or 15.7% of the 478,420 total discharged; nonservice connected, 394,416 or 82.5%; and nonveterans, 8,778 or 1.8%. It is a hard fact that many are permanent patients. Moreover, as long as most military personnel are men, there will be an excess of males in both military and veterans hospitals. Would none, some, or all of the veterans with non-service-connected disabilities in veterans hospitals have been hospitalized in nonfederal hospitals? If most would have been, then the reason has not yet been found for the excess of 77,720 male patients in all classes of American hospitals, and these data presented in table 2 merely indicate the location by type of control of the hospitals in which male patients far outnumber female patients. In other words, an answer to the "where" question does not answer the "why" question. The foregoing comments sharpen the differences between federal hospitals—particularly the military and the veterans—and all other types of hospitals in the United States.

Computed but not included in any of the tables is the average length of stay in the 16 classes of hospitals classified by type of control. The averages in days were: U. S. Army, 18.7, U. S.

TABLE 6.—*Percentage of Total Male and Total Female Patients in Each Age Group in Hospitals Classified by Type of Control*

Row Number	Type of Control (1)	Age 14 and Under			Ages 15-44			Ages 45-64			Age 65 and Over			Total Patients			Number of Beds (17)	Number of Births (18)	Number of Admissions (19)	Average Daily Census (20)
		Male (2)	Female (3)	Total (4)	Male (5)	Female (6)	Total (7)	Male (8)	Female (9)	Total (10)	Male (11)	Female (12)	Total (13)	Male (14)	Female (15)	Total (16)				
1	U. S. Army	0.7	0.6	0.6	6.1	0.9	3.6	0.4	0.1	0.2†	0.1	*	0.1	2.6	0.5	1.6	1.9	1.6	2.0	1.6
2	U. S. A. F.	0.2	0.1	0.2	1.6	0.4	1.0	0.1	*	0.1	*	*	*	0.7	0.2	0.4	0.7	1.0	1.0	0.5
3	U. S. N.	0.4	0.4	0.4	5.0	0.6	2.9	0.6	0.1	0.4	0.2	*	0.1	2.3	0.3	1.4	1.6	1.5	1.5	1.4
4	U. S. Public Health Service	*	0.1	0.1	1.2	0.2	0.7	0.9	0.1	0.6	0.4	*	0.2	0.9	0.1	0.5	0.5†	*	0.3	0.5
5	Veterans Administration	...	...	...	18.3	0.4	9.6	21.1	0.2	12.1	6.9	0.1	3.5	15.6	0.3	8.4	7.9	*	2.5	7.8
6	Indian Affairs	0.6	0.8	0.7	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1†	0.2	0.2	0.2	0.2	0.2	0.1
7	Other federal	0.1	0.1	0.1	0.3	0.1	0.2	0.1	*	0.1	0.2	*	0.1	0.2	0.1	0.1	0.6	0.1	0.1	0.7
	7a Federal subtotal	**2.0**	**2.1**	**2.1**	**32.7**	**2.9**	**18.2**	**23.3**	**0.6**	**13.6**	**7.9**	**0.2**	**4.1**	**22.4**	**1.7**	**12.6**	**13.4**	**4.4†**	**7.6**	**12.6**
8	State	32.6	31.5	32.1	42.4	43.6	43.0	44.9	59.3	51.1	46.4	52.2	49.3	43.2	49.1	46.0	44.9†	2.2	3.7	50.3
9	County	6.2	6.4	6.3	4.4	6.4	5.4	6.7	5.5	6.1†	10.7	8.3	9.5	6.5	6.5	6.5	6.8	6.7	6.9	6.2†
10	City	5.3	5.1	5.2	2.7†	4.1	3.3	3.7	3.0	3.4	6.0	4.6	5.3	3.9	3.9	3.9	4.6	6.1	6.4†	4.5
11	City-county	1.0	0.8	0.9	0.4	0.8	0.6	0.6	0.5	0.5†	1.4	0.9	1.1†	0.7	0.8	0.7	0.7	1.5	1.3	0.6
	11a Other governmental subtotal	**45.1**	**43.8**	**44.5**	**49.9**	**54.9**	**52.3**	**55.9**	**68.3**	**61.1**	**64.5**	**66.0**	**65.2**	**54.3**	**60.3**	**57.1**	**57.0**	**16.5**	**18.3**	**61.6**
12	Church	24.0	24.1	24.0	7.4	18.7	12.9	8.1	12.9	10.2	10.7	12.8†	11.8	9.6	16.1	12.7	10.6†	32.8	28.8	9.5
13	Nonprofit associations	25.2	25.9	25.5	8.2	19.8	13.9	10.7	15.0	12.5	13.8	16.4	15.1	11.5	18.1	14.6	15.8	39.3	37.8†	13.7
14	Individual	1.7	2.1	1.9	0.5	1.1	0.8	0.6	1.0	0.8	1.1	1.6	1.4	0.7	1.3	1.0	1.0	2.2	2.1	0.7
15	Partnership	0.8	0.7	0.7	0.4	0.8	0.6	0.4	0.6	0.5	0.6	0.9	0.7	0.4	0.7	0.6	0.6	1.4	1.7	0.5
16	Corporation	1.2	1.3	1.3	0.9	1.8	1.3†	1.0†	1.6	1.3	1.4†	2.1	1.7	1.1	1.8	1.4	1.6	3.4	3.7	1.4
	16a Nongovernmental subtotal	**52.9**	**54.1**	**53.4**	**17.4**	**42.2**	**29.5**	**20.8**	**31.1**	**25.3**	**27.6**	**33.8**	**30.7**	**23.3**	**38.0**	**30.3**	**29.6**	**79.1†**	**74.1**	**25.8**
	Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* Less than 0.1%. † Forced to total 100%.

A. F., 12.5, U. S. N., 23.3, U. S. Public Health Service, 35.8, Veterans Administration, 75.3, Indian Affairs, 16.0, other federal, 203.0, and federal subtotals, 40.0; state, 326.4, county, 21.9, city, 16.6, city-county, 11.1, and other governmental subtotals, 80.8; church, 7.9, nonprofit associations, 8.7, individual, 8.0, partnership, 6.7, corporation, 9.1, and nongovernmental subtotals, 8.4. The average stay of 203 days in other federal hospitals was not important because there were only eight hospitals in that category. (There is always some question about the meaning of the term "average length of stay" for any class of hospital in which the number of admissions is substantially less than the average daily census—notably in nervous and mental institutions.) The average stay in the military hospitals ranged from 12.5 days to 23.3 days as compared with 75.3 days in the Veterans Administration hospitals. In fact, for all federal hospitals with their excess of 134,000 males the average stay was 40 days as compared with only 8.4 days in the nongovernmental hospitals where there was an excess of 64,000 females. This observation suggests but does not prove that the average length of stay of the 642,000 males in our survey was considerably

TABLE 7.—*Number of Patients in Age Group per 100,000 Males and per 100,000 Females in the United States in Hospitals Classified by Type of Service*

Row Number	Type of Service (1)	Age 14 and Under			Ages 15-44			Ages 45-64			Age 65 and Over			Total Patients		
		Male (2)	Female (3)	Total (4)	Male (5)	Female (6)	Total (7)	Male (8)	Female (9)	Total (10)	Male (11)	Female (12)	Total (13)	Male (14)	Female (15)	Total (16)
1	General	123	99	112†	305	344†	324	471	347	408	751	610	676	320	300	310
2	Nervous and mental	64	49	56	364	288	325	696†	589	642	954	933	943	390	340	365
3	Tuberculosis	7	8	7	57	45	51	117	29	72	87	29	56	57	30	43
	3a Subtotal (1-3)	**194**	**156**	**175**	**726**	**677**	**700**	**1,284**	**965**	**1,122**	**1,792**	**1,572**	**1,675**	**767**	**670**	**718**
4	Maternity	1	1	1	1†	9†	5	1	2	1	2	2	2	1	4	3
5	Industrial	*	*	*	2	*	1	5†	1	3	6	1	3	2	*	1
6	Eye, ear, nose, and throat	1	1	1	1	1	1	2	1	2†	3	3	3	1	1	1
7	Children's	10†	7	8	*	*	*	1	*	1†	..	*	*	3	2	3
8	Orthopedic	10	9	10	1†	1	2	1	1	1	*	2	1	4	4	4
9	Isolation	2	1	2†	1	1	1	1	*	1	1	1	1	1	1	1
10	Convalescent and rest	2	2	2	2	1	1	7	5	6	33	34	34	5	5	5
11	Institutions	*	*	*	8	1	5	16	4	10	77	41	58	13	5	9
12	All other	2	2	2	3	3	3	16	14	15	79	70	74	12	11	11
	12a Subtotal (4-12)	**28**	**23**	**26**	**19**	**17**	**19**	**50**	**28**	**40**	**201**	**154**	**176**	**42**	**33**	**38**
13	**Known total**	**222**	**179**	**201**	**745**	**694**	**719**	**1,334**	**993**	**1,162**	**1,993**	**1,726**	**1,851**	**809**	**703**	**756**
	Estimate for 301 nonreplying hospitals	11	9	10	38	35	36	67	50	59	101	87	94	41	36	38
	National total	233	188	211	783	729	755	1,401	1,043	1,221	2,094	1,813	1,945	850	739	794

* Less than 0.5. † Forced to add to totals.

TABLE 8.—*Number of Patients in Age Group per 100,000 Males and per 100,000 Females in the United States in Hospitals Classified by Type of Control*

Row Number	Type of Control (1)	Age 14 and Under			Ages 15-44			Ages 45-64			Age 65 and Over			Total Patients		
		Male (2)	Female (3)	Total (4)	Male (5)	Female (6)	Total (7)	Male (8)	Female (9)	Total (10)	Male (11)	Female (12)	Total (13)	Male (14)	Female (15)	Total (16)
1	U. S. Army	2	1	1	45	6	26	5	1	3	2	1	1	21	3	12
2	U. S. A. F.	*	*	*	12	3	7	1	*	1	*	*	*	5	1	3
3	U. S. N.	1	1	1	37	4	21	8	1	4	4	1	2	18	2	10
4	U. S. Public Health Service	*	*	*	9	1	5	12	1	7	7	1	4	7	1	4
5	Veterans Administration	..	..	..	137	3	69	282	2	141	137	2	65	126	2	64
6	Indian Affairs	1	2	1	1	2	2	1	1	1	1	1	1	1	2	1
7	Other federal	*	*	*	2	1	1	1	*	1	5	*	2	2	*	1
	7a Federal subtotal	**4**	**4**	**3**	**243**	**20**	**131**	**310**	**6**	**158**	**156**	**6**	**75**	**183**	**11**	**95**
8	State	72	56	65	316	303	309	569	589	594	926	901	913	350	345	348
9	County	14	12	13	33	45	38	89	54	71	213	142	176	53	46	49
10	City	12	9	10	20	28	24	50	30	40	120	79	98	31	28	30
11	City-county	2	2	2	3	6	4	8	5	6	27	16	21	6	5	6
	11a Other governmental subtotal	**100**	**79**	**90**	**372**	**382**	**375**	**746**	**678**	**711**	**1,286**	**1,138**	**1,208**	**440**	**424**	**433**
12	Church	53	43	48	55	129	93	108	128	118	214	222	218	78	114	96
13	Nonprofit associations	56	46	51	61	138	100	143	149	146	276	283	280	93	128	110
14	Individual	4	4	4	4	8	6	8	10	9	23	27	25	6	9	7
15	Partnership	2	1	2	3	5	4	5	6	5	11	15	13	3	5	4
16	Corporation	3	2	3	7	12	10	14	16	15	27	35	32	9	12	11
	16a Nongovernmental subtotal	**118**	**96**	**108**	**130**	**292**	**213**	**278**	**309**	**293**	**551**	**582**	**558**	**189**	**268**	**228**
	Known total	**222**	**179**	**201**	**745**	**694**	**719**	**1,334**	**993**	**1,162**	**1,993**	**1,726**	**1,851**	**809**	**703**	**756**
	Estimate for 301 nonreplying hospitals	11	9	10	38	35	36	67	50	59	101	87	94	41	36	38
	National total	233	188	211	783	729	755	1,401	1,043	1,221	2,094	1,813	1,945	850	739	794

* Less than 0.5.

greater than the average length of stay of the 564,000 females. In the middle group we note that the average stay was 80.8 days for the patients in the state, county, city, and city-county hospitals, with a high of 326.4 days in state hospitals, predominantly nervous and mental institutions; in this group of hospitals, however, there was only an excess of 8,100 males, and the evidence of longer average stay for male patients in these hospitals is not clearly indicated. This survey produced no data on the age and sex of the almost 20,000,000 persons admitted during 1953. Since such data are necessary in computing what is commonly called average length of stay, no such computation could be made by age and sex.

The largest group of patients in hospitals classified by type of control was in state hospitals, 554,816—slightly less than half of the total patients in all hospitals. More than 90% of the patients in state hospitals were in nervous and mental institutions. Table 2C presents a condensed summary of patients in a sixfold grouping of control hospitals cross classified by (1) general, (2) nervous and mental, and (3) other types-of-service hospitals. This distribution is derived directly from appendix table E, in which the rounding of numbers was not forced to equal column totals. A unique feature of this large group of patients is that the number of males and females was practically the same—277,546 and 277,270. There was an excess of 4,926 males in county hospitals, an excess of 2,604 males in city hospitals, and an excess of 359 males in city-county hospitals. In the remaining five classes (rows 12-16), there was an excess of 64,631 female patients in nongovernmental hospitals, 29,407 in church, 28,552 in nonprofit associations, 2,389 in individual, 1,270 in partnership, and 3,013 in corporation hospitals.

Excess of Males.—It is not surprising to find an excess of males in the four age groups in each of the seven classes of federal hospitals (table 2) except in the age group 14 and under in U. S. Public Health Service and in three of the four age groups for Indian Affairs hospitals. Since the total numbers of males and females in the state hospitals were practically equal, it is not surprising that the excess in each age group was quite small. In the county, city, and city-county hospitals, there was an excess of females only in the age group 15-44. In the subtotals for state, county, city, and city-county hospitals, a pronounced excess of females only in the age group 15-44 and an excess of only 8,165 males was found. On the other hand, in all five of the nongovernmental classes of hospitals, there was a pronounced excess of females in all age classes except the youngest. The subtotals (12a) for these hospitals show an excess of females of 64,631. Four-fifths of all hospital births occurred in these nongovernmental hospitals, with more than 1 million in church hospitals and more than 1,250,000 in the nonprofit association hospitals.

The numbers in table 2 were converted to percentages in table 4, available in the reprint. Since the bottom three rows of this table refer to all hospitals, the percentages are the same as in the bottom rows of table 3. The similarity in format of table 4 to table 3 would seem to obviate the need for special comment on the percentages other than those given in the subtotals. In all federal hospitals, 56.0% of the patients age 14 and under were males, 92.4% in the age group 15-44, 97.8% in the age group 45-64, 96.4% in the age group 65 and over, and 94% of total patients. Only 1.2% of the total patients were under 15 years of age, 58.9% in the age group 15-44, 33.3% in the age group 45-64, and only 6.6% in the age group 65 and over. (It would seem probable that the percentage of total patients age 65 and over will rise with the passing years as the veterans of World War II grow older.) Of the male patients, 0.7% were under 15 years of age, 57.9% in the age group 15-44, 34.6% in the age group 45-64, and only 6.8% in the age group 65 and over. The age distribution of (the relatively few) female patients was quite different—9%, 74.7%, 12.3%, and 4%.

One feature of the percentage distribution of patients by age and sex in other governmental hospitals was the small difference between males and females, which results from the fact that of all the patients in these four classes of hospitals 50.6% were males and 49.4% females. Of total patients, 5.9% of those in other governmental hospitals were in the age group 14 and under as compared with 1.2% in the federal hospitals and 7.6% in all hospitals. In the age group 15-44, the percentage was 37.4 as compared with 58.9 in federal hospitals and only 40.9 in all hospitals. In the age group 65 and over, the percentage was 23.3 as compared with only 6.6 in federal hospitals and 20.4 in all hospitals.

Excess of Females.—Since females predominate (58.9%) in nongovernmental hospitals, comments will be limited to the percentages for females. They comprised 44.4% of the patients 14 and under, 69.7% of the patients 15-44, 53.1% of the patients 45-64, and 54.6% of the patients age 65 and over; for the three older ages corresponding percentages in all hospitals were 48.7, 43.2, and 49.6. The percentage of females was, therefore, extremely high in the age group 15-44 and moderately high in the two upper age groups; the former is not surprising because 2,500,000 of the 3,200,000 hospital births occurred in nongovernmental hospitals (column 19, table 2). According to column 16 of table 6, 12.6% of all patients (22.4% of the males and only 1.7% of the females) were in federal hospitals, 57.1% (54.3% males and 60.3% females) in other governmental hospitals—46% (43.2% males and 49.1% females) in state hospitals alone—and 30.3% (23.3% males and 38% females) in nongovernmental hospitals. Of the patients under 15 years of age, 2.1% were in federal, 44.5% in other governmental—32.1% in state hospitals alone—and 53.4% in nongovernmental. Of the patients in the age group 15-44, 18.2% were in federal, 52.3% in other governmental—43% in state hospitals alone—and 29.5% in nongovernmental; 32.7% and 42.4% of the males and only 2.9% and 43.6% of the females were in federal and state hospitals, but 38.5% of the females were in church and nonprofit hospitals. Of the patients in the age group 45-64, 13.6% were in federal, 61.1% in other governmental—51.1% in state hospitals alone—and 25.3% in nongovernmental hospitals; all except 12.8% of the females were in state, church, and nonprofit hospitals. Of the patients in the age group 65 and over,

TABLE 2C.—*Distribution of 10,000 Patients by Sex*

Row Number	Type of Hospital: Control (1)	Type of Hospital: Service (2)	Number of Patients: Male (3)	Number of Patients: Female (4)	Number of Patients: Total* (5)
1-3	Military	General	293	46	339
		Nervous and mental	...	...	...
		Others	...	...	...
5	Veterans Administration	General	367	4	371
		Nervous and mental	397	67	464
		Others	66	1	66
4, 6, 7	Other federal	General	31	12	43
		Nervous and mental	15	2	16
		Others	19	5	24
	7a Federal subtotal	**General**	**691**	**62**	**753**
		Nervous and mental	**412**	**9**	**420**
		Others	**85**	**6**	**91**
			1,188	**76**	**1,264**
8	State	General	73	67	140
		Nervous and mental	2,050	2,122	4,178
		Others	172	109	281
9-11	Local government	General	295	328	623
		Nervous and mental	48	48	96
		Others	249	149	398
	11a Other governmental subtotal	**General**	**367**	**395**	**763**
		Nervous and mental	**2,103**	**2,171**	**4,274**
		Others	**421**	**258**	**679**
			2,892	**2,824**	**5,715**
12-16	**Nongovernmental**	**General**	**1,049**	**1,538**	**2,586**
		Nervous and mental	**48**	**81**	**129**
		Others	**146**	**160**	**306**
	16a Nongovernmental subtotal		**1,243**	**1,778**	**3,021**
	Total*		**5,322**	**4,678**	**10,000**

* Numbers were not forced to equal totals.

only 4.1% were in federal hospitals, 65.2% in other governmental—49.3% in state hospitals alone—and 30.7% in nongovernmental hospitals. The highest percentage of patients who were in federal hospitals was in the age group 15-44; the highest percentage in other governmental hospitals was in the age group 65 and over, and the highest percentage for the nongovernmental was in the age group under 15 years of age.

Hospital Incidence Rates.—In order to relate the number of patients to the number of persons in the general population of the United States in the same age and sex group, the numbers in table 2 have been expressed in table 8 as the number of patients per 100,000 males or per 100,000 females in each age group and in all age groups combined. These ratios might be called a type of hospital incidence rates. For example, 51,276 males age 14 and under compares with a total of 23,148,000 males in the age group, or 222 per 100,000 population. Of this 222 rate, 72 were in state, 53 in church, 56 in nonprofit, and none in veterans hospitals. The 2,593 estimated number of males 14 and under in the 301 nonreplying hospitals was 11 per 100,000 boys in this age group; if these 11 are added, the total number of male patients 14 and under was 233 per 100,000 boys. The over-all hospital incidence rate was 95 in federal hospitals (column 16), 433 in other governmental hospitals, and 288 in nongovernmental hospitals, or 756 in all hospitals. The over-all rate for males was 809 as compared with 703 for females. When allowance was made for the slight excess of females (50.3%) in the population of the United States, males had sharply higher incidence rates than females. The distribution among the three broad groupings—federal, other governmental, and nongovernmental hospitals—was very different for the two sexes; 180, 440, and 189 for males, and 11, 424, 268 for females.

CONCLUSIONS

This survey of the age and sex distribution of patients in 6,539 of the 6,840 registered hospitals late in 1953 provides a comprehensive large-scale study on the subject. The excess of 77,720 more male than female patients in all types and kinds of hospitals presented the need for an explanation, although the survey did not provide data on diagnosis and treatment. The excess of male patients in federal hospitals, particularly the excess of 98,605 male patients in hospitals of the Veterans Administration, and the offsetting excess of 64,631 female patients in nongovernmental hospitals told us in what type of hospitals the excess of males and females was greatest. Governmental hospital practices partly accounted for the excess of male patients. But locating the excess of males did not fully explain why there should be more male than female patients. One would have to probe much deeper into medical and hospital data to find the answer. Admission rates and average stay by age and sex would be required to determine whether the excess of males on the day of reporting was due to more male admissions or to males staying longer than females. About 17% of all patients admitted were expectant mothers. If the other 83% of the admissions were equally divided between the sexes and the average stay was about the same, about 42% of all patients would have been males; but 53.2% of the patients were males. In nongovernmental general hospitals alone the percentage of females was only 59.5%; many more female patients would have been required to counterbalance the excess of males in federal hospitals.

The evidence of higher hospital incidence or "morbidity" rates of males strongly implies that they are the sicklier and more hospitalized sex. In subsequent studies in this series, the role of accidents and occupational diseases may be found to be a major part of the explanation; the latter alone can scarcely explain the excess of 11,300 males (56.2%) under age 15. The peculiar age and sex distribution of patients in federal hospitals has been emphasized; only 1.2% were under 15 years of age and only 6% were females. In the age distributions it was a surprise to find that 28% of the patients under 15 years of age were in nervous and mental institutions, as the study was begun with a guess of 10%. For that matter, it was believed that no more than 40 to 45% of the patients would be males. Hospital administrators and physicians may, however, discover in these data more reasonable explanations of the unexpected excess of male patients.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Drunkenness: Admissibility in Evidence of Chemical Tests.—The defendant was convicted of the crime of driving while intoxicated. From such conviction he appealed to the Supreme Court of Arizona.

The defendant ran his car into a ditch. He was arrested and taken to a nearby police station, where he submitted to a "drunkometer" test. This test required the defendant to blow up a balloon so as to capture his breath. The breath was then passed through tubes in the machine: one containing 10 cc. of 56% sulphuric acid, another containing 1 cc. of 0.5 *N* potassium permanganate, and still another, known as the ascarite tube, that was used to determine the percentage of alcohol by weight in the defendant's blood. This latter determination was accomplished by weighing the ascarite tube before and after the test. The chemist who conducted the test testified that the results indicated a concentration of 0.23% by weight of alcohol in the defendant's blood. Under the Arizona statute, persons with a concentration of 0.15% or more by weight are presumed to be under the influence of alcohol. The chemist further testified that the chemicals were kept under lock and key in a testing room when not in use, that he checked the constancy of their contents at least once a week, and that he had checked the contents of the bottles from which the chemicals were taken for the instant test after the test was completed and had found them to be of standard quality. He admitted, however, that other persons had access to the chemicals.

The defendant first contended that evidence of the results of the "drunkometer" test should not have been admitted because there was a failure to show that the chemicals used in the test were under the exclusive control of one person and, consequently, there was no way to ascertain the accuracy of the results. The Supreme Court admitted that it would be better if the chemicals were kept under the exclusive control of one person. The undisputed testimony indicated, however, that the chemicals were rechecked after the test of the defendant and found to be standard. It was not an error, therefore, for the court to admit the test in evidence. The defendant also contended that the test was made without his consent. Since no such objection was made during the course of the trial, the Supreme Court refused to discuss the issue on appeal. In conclusion, the Court referred to the Arizona statute providing a presumption of intoxication when 0.15% or more by weight of alcohol content is found in a person's blood and stated that such statute had been held constitutional in a previous decision.

Accordingly, the judgment of conviction was affirmed. *State v. Warren, 252 P. (2d) 781 (Ariz., 1953).*

Optometry Practice Acts: Unlawful Practice of Optometry by Physician.—The Mississippi State Board of Optometry sought to enjoin the Busch Jewelry Company and Dr. F. M. Dooley from engaging in the unlawful practice of optometry. From a judgment granting the injunction, the defendants appealed to the Supreme Court of Mississippi.

Defendant Dooley was a licensed doctor of medicine who devoted his full time to examining eyes and prescribing spectacles for customers of the Busch Jewelry Company. For these services he received a fixed salary plus office space and equipment. Dr. Dooley contended that he was authorized to practice optometry under his license to practice medicine. The court held that it was unlawful for a corporation or lay person to engage directly or through agents in the practice of optometry and that the plaintiff certainly was within its rights in bringing a suit to prevent the employee of a corporation from carrying on such a prohibited practice. The defendant was enjoined not from practicing either medicine or optometry in a lawful manner but only from unlawfully practicing optometry. The judgment in favor of the state board of optometry was therefore affirmed. *Busch Jewelry Co. v. State Board of Optometry, 62 So. (2d) 770 (Miss., 1953).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Cerebral Vascular Diseases: Their Significance, Diagnosis and Present Treatment, Including the Selective Use of Anticoagulant Substances. I. S. Wright and E. McDevitt. Ann. Int. Med. **41**:682-698 (Oct.) 1954 [Philadelphia].

Cerebral vascular diseases are among the most serious and the commonest diseases. Although the present state of knowledge about these diseases and their treatment is far from satisfactory, there is no justification for a defeatist attitude. Differential diagnosis must be made, in order that proper treatment can be instituted. Vasospasm occurs in the cerebral arteries and is of importance in warning of more serious phenomena to come, and also because treatment may be of some help in preventing these serious developments. Cerebral hemorrhage is always serious; surgical methods may be considered for some subdural or extradural hemorrhages. Most other cerebral hemorrhages are not amenable to specific therapy at the present time. The use of sympathetic blocks for acute thromboses or emboli is under study; final evaluation remains for the future. The use of anticoagulant drugs for the treatment of thrombosis and embolism is also in the process of investigation. Their trial appears justified, but more experience is necessary for definite evaluation. Experience with anticoagulants in the reduction of thromboembolic episodes in 57 patients treated for a total period of 1,162 months is summarized. During a period of 795 patient months before anticoagulant therapy, these patients had 205 thromboembolic episodes, 81 of which were cerebral in location, whereas during the 1,162 patient months of treatment 23 episodes occurred, 6 of which were cerebral. The reduction appears to occur mainly in emboli arising from thrombi in the hearts of patients with rheumatic heart disease or acute myocardial infarction; a reduction in the incidence of recurrent thromboses in the arteries of the brain was also noted. The risk from hemorrhage in the treatment of cerebral vascular diseases with anticoagulants is present but not excessive.

Pulmonary Embolism. J. F. Lewis. J. Arkansas M. Soc. **51**:115-120 (Oct.) 1954 [Fort Smith, Ark.].

Pulmonary embolism may complicate a variety of conditions and operations and is frequently fatal. Its actual incidence and the percentage of fatalities are difficult to estimate. Lewis is of the opinion that, while pulmonary embolism is extremely dangerous, the great majority of patients recover, particularly if it is recognized and treated early. A small percentage of patients die within a few minutes or an hour after the embolism occurs. Yet severe embolism is usually preceded by earlier, smaller emboli, which should have given the signal for adequate therapy by vein ligation or anticoagulants. Small emboli may only cause a slight pleuritic pain. Severe pulmonary embolism, however, will produce shock, cyanosis, dyspnea, tachycardia, and great pain similar to the pain produced by coronary occlusion. A friction rub, electrocardiographic and roentgenologic changes may be present after several days. Examination should be done gently, as even taking a deep breath may have an adverse effect on the embolism. Oxygen, atropine, aminophylline, and heparin should be given if the patient is in distress. Anticoagulant therapy is advisable in the following conditions: thrombophlebitis, coronary thrombosis with myocardial infarction, rheumatic heart disease with fibrillation and multiple embolization, and congestive heart failure. Anticoagulants not only prevent the formation and limit the extension and propagation of thrombi; they also hasten their dissolution. The dosage and control of treatment with heparin and bishydroxycoumarin (Dicumarol) are discussed, as are length of bed rest and several other measures. The author discusses, on the basis of roentgen pictures and brief case reports, some of the diagnostic and therapeutic problems involved in pulmonary embolism; he feels that anticoagulant therapy is here to stay and that it deserves wider application.

Superior Caval Vein Syndrome: Three Cases Presumably Due to Thrombosis; One Case Treated by Anastomosing the Azygos Vein to the Right Auricle. A. H. Andersen, A. T. Hansen, E. Husfeldt and others. Acta med. scandinav. **150**:81-94 (No. 2) 1954 (In English) [Stockholm, Sweden].

An increase of pressure in the superior vena cava caused by narrowing of its lumen as a result of external compression or thrombosis may lead to dilatation of the veins of the head and the neck, with distention of the collateral veins on the thorax, cyanosis and edema of the face, dyspnea, and pressure in the head, particularly on exertion. Difficulties may be encountered in arriving at a diagnosis of this syndrome, but its existence is almost certainly established when a strongly elevated venous pressure in the arms is associated with normal venous pressure in the legs. The prognosis is extremely grave when the obstruction is due to compression by a malignant tumor, but in other cases, if the disease that originally led to the development of the syndrome has been cured or has become quiescent, the condition, though disabling, is not necessarily fatal and may even be expected to improve slowly, probably as a result of increasing efficiency in the collateral circulation. Venous angiocardiography, especially when it is carried out electively through the introduction of a catheter, is a useful diagnostic measure and provides detailed topical information of the utmost value when operative treatment is under consideration. Ordinary radiography of the thorax, however, is for the most part diagnostically unprofitable. Treatment has hitherto consisted chiefly of palliative x-ray therapy and decompression procedures in the case of space-filling tumors. Bleeding has a good symptomatic effect, even though the amount of blood withdrawn may be small. A new operative procedure, not previously recorded in the literature, in which the azygos vein was anastomosed to the right atrium, was used successfully by the authors in one of their three patients, a 9-year-old girl. Follow-up two years later showed complete clinical recovery and almost complete elimination of the "inflated" appearance and disproportionate growth of the head, neck, arms, and thorax, which were a pronounced feature of the patient's condition before the operation and which were, presumably, related to the local stasis in the superior vena cava area. Similar growth disturbances have been described in children with arteriovenous aneurysms, and it is interesting to note that in this patient the existence of a congenital deformity of the superior vena cava cannot be ruled out.

Combined Antibiotic-Cortisone Therapy in Infectious Asthma: Rationale of Its Early Application. W. Finke. New York J. Med. **54**:2685-2692 (Oct.) 1954 [New York].

Combined antibiotic-cortisone therapy seemed rational in infectious asthma because it combats two outstanding causes of the disease, bronchial infection and bronchial inflammation. Thirty-eight children and 40 adults with infectious asthma in various stages were given antibiotics for an average of two and three-fourths years and additional cortisone for an average of three and one-half months. The results of treatment were good or excellent in 80% of the whole group. The improvement

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often approached cure in early cases, as demonstrated by decreasing respiratory sickness and by increasing vital capacity and weight in children. It is concluded that antibiotics and cortisone should be used not only to relieve and rehabilitate patients with advanced asthma with irreversible pulmonary disease but even more as an early basic therapy to prevent a common and costly chronic disease.

Allergy to Insulin: Statistical Study of 1,500 Diabetics. G. Andreani and L. Corti. Sett. med. **42**:345-352 (June 30) 1954 (In Italian) [Florence, Italy].

The occurrence of allergic reaction to insulin during the treatment of diabetes with this drug is rare. Local reactions, limited to the site of injection, are commoner than generalized reactions, with diffuse, itchy urticaria; angioneurotic edema; gastrointestinal disturbances; bronchial asthma; and other symptoms. Sometimes either type of reaction can be associated with resistance to the drug. All types of insulin (unmodified insulin, crystalline insulin, globin-insulin, and protamine zinc insulin) can cause allergic reactions. However, most of those reported in the literature were caused by unmodified insulin and protamine zinc insulin. Allergic reactions to insulin are easy to diagnose, because they start at the site of the injection and also because they disappear if insulin administration is discontinued. Skin tests, like those for hypersensitivity, can be performed to confirm the diagnosis. Prognosis is, as a rule, good; no fatal case has been recorded so far. It may be aggravated, however, in those cases in which insulin administration has to be interrupted and other therapeutic and dietary means are inadequate to control diabetes. The possibility that the reaction is caused by incorrect sterilization of the syringe must be ruled out before any therapy is instituted. Changing the type of insulin may sometimes control the reactions. The treatment consists of desensitization with specific or aspecific means. A total of 1,522 diabetics who were using insulin were seen by the authors in the last 10 years. A review of these patients revealed that mild local reactions had developed in 16 patients (1.05%) but had never necessitated discontinuance of the drug. The authors ascribe this percentage, much lower that that reported by others, to the fact that many persons, especially those who were treated in the outpatient clinic, paid no attention to the mild and transitory local manifestations. A marked generalized reaction to the drug occurred in three patients (0.2%); the manifestations were so pronounced that insulin therapy had to be discontinued.

Early Atypical Manifestations of Leukemia. G. C. Meacham and A. S. Weisberger. Ann. Int. Med. **41**:780-797 (Oct.) 1954 [Philadelphia].

The case histories of 10 patients with various combinations of anemia, leukopenia, neutropenia, and thrombocytopenia are described. Bone marrow aspirations uniformly gave normal results or showed hyperactivity. The spleen was initially enlarged in only one instance. Nine of these patients died: three of leukemia, one of reticulum cell sarcoma, one of aplastic anemia, and one of hemorrhage associated with thrombocytopenia. The 10th patient is slowly undergoing hematological changes strongly suggestive of leukemia. In none of the patients in whom leukemia or lymphoma subsequently developed was it possible to establish these diagnoses initially. Splenectomy was of no value to the eight patients in whom it was performed. The syndrome in the majority of these patients fits the description of what has been termed "primary splenic panhematopenia." It is possible that follow-up studies of cases thus described may reveal the ultimate development of leukemia, lymphoma, or other disease in a significant percentage of cases.

Radioactive Phosphorus (P^{32}) In Treatment of Vaquez's Disease. E. Moretti and V. Marinoni. Sett. med. **42**:365-369 (July 15) 1954 (In Italian) [Florence, Italy].

The first results obtained in Italy with radiophosphorus (P^{32}) in the treatment of polycythemia vera are reported. The isotope was given to 14 patients who have been followed for from four years to six months. To secure greater absorption of the isotope the patients were kept fasting from the evening before to three hours after they received the drug orally. Two patients with dyspepsia received it intravenously. A dose of up to 8 mc. was given to patients with an erythrocyte count of 8 million per cubic millimeter and a blood volume greater than 8 liters; the others received doses of not more than 5 mc. The authors used one large single dose rather than repeated divided doses to prevent the possible development of resistance to the isotope and of leukemoid reactions. The best route of administration and the proper dose must be carefully evaluated for each patient, because the metabolism of radiophosphorus and the response to it vary from person to person. The initial severity of the patient's condition does not justify the administration of larger doses. The subsequent administration of more radiophosphorus depends not only on the erythrocyte count but also on the subjective and objective improvement obtained with the first dose. Because the effects of this therapy become manifest after 40 days and are marked on the 60th day, only after this time has elapsed should the drug be given again, if needed. The results obtained in these patients were encouraging; their cardiovascular function was improved, and the liver and kidney function was not impaired. There were no side-effects attributable to the therapy. A relapse occurred in two patients, 41 and 21 months, respectively, after the therapy. They improved again after therapy with radiophosphorus, and at the time of writing they had been well for 7 and 12 months respectively. It may be that the clinical and hematological improvement obtained with this isotope is sometimes only transitory, but these relapses can be treated again, since in these cases resistance does not develop. It is too early to say whether this therapy influences the survival period of patients with this disease. It is certain, however, that it does enable them to lead a normal life.

Acute Epidemic Goiter and Sporadic Simple Goiter: Etiopathogenetic and Therapeutic Notes. P. Timpano. Policlinico (sez. prat.) **61**:947-950 (Aug. 9) 1954 (In Italian) [Rome, Italy].

Forty-seven patients, most of them women, with a sudden enlargement of the thyroid were observed and treated by the author during 1942 and 1943. The menstruation, the basal metabolic rate, the differential blood count, and the erythrocyte sedimentation rate were normal in most of them, and hyperthyroidism was not present. Instillations of iodine into the gland cured most of these patients in a short time and proved the best method of treatment. From 1943 to 1952, Timpano has seen and treated 175 patients with simple goiter. In these patients also the best therapeutic results were obtained when the iodine was introduced into the thyroid. On the basis of these results and the results of studies on the patients' physical environment, the author states that acute epidemic goiter and sporadic simple goiter cannot be always ascribed to a deficiency of iodine in the environment or to an inadequate endogenous supply of it. He believes that goiter is due to particular modifications of the biological activities of the thyroid that are secondary to neuropsychic traumas, endocrine imbalances, and other causes. Because of such variations, the thyroid is no longer capable of metabolizing the iodine administered orally and parenterally, whereas it does metabolize that which is instilled into the gland. The iodine thus administered acts as a stimulus and renders again possible the biological activity necessary for the use of the medicament. When a goiter is not caused by an altered metabolism of the thyroid, administration of iodine by routes other than into the gland will be not only a therapeutic but also a prophylactic means, except in those particular cases for which roentgen therapy or surgery is necessary. The best results will always be secured by instilling the drug into the gland.

Incomplete Pituitary Insufficiency: An Essay in Diagnosis. L. A. Wilson, W. H. R. Auld and W. Bowman. Lancet **2**:715-719 (Oct. 9) 1954 [London, England].

Wilson and associates point out that, although the clinical syndrome in cases in which autopsy disclosed the destruction of all or nearly all of the pituitary was described by Sheehan and Summers, the heterogeneous clinical pictures that may unfold when the lesion is less extensive or of shorter duration require further study. The histories of eight patients (one man

and seven women) are described, in whom there was evidence of partial failure of pituitary function. Efforts were made to ascertain the progress of individual symptoms and signs at follow-up examinations at intervals of two or three months. Five tests of endocrine function were made as well as blood cell count, hemoglobin and erythrocyte sedimentation tests, Wassermann reaction, fractional test meal, and roentgenograms of skull and chest. The endocrine tests included the determination of the basal metabolic rate, the plasma cholesterol level, the water excretion (Kepler's) test, the urinary 17-ketosteroid excretion, and the insulin tolerance. Two broad groups could be differentiated among the eight patients, one showing predominant loss of sex function and the other predominant "cold syndrome," a variable combination of cold intolerance, asthenia, and apathy. Significant hypopituitarism may occur without loss of sex function or genital atrophy. The characteristic laboratory findings were a low basal metabolic rate, extremely low or absent urinary excretion of 17-ketosteroids in women, and (in seven cases) abnormal results in the Kepler water excretion test. The insulin tolerance test was usually normal. In such incomplete syndromes the diagnosis may not be readily apparent, and it may be difficult to confirm; but every effort should be made to recognize this disorder, in view of the gratifying response to therapy. Testosterone was the mainstay of treatment, and results were gratifying. The large doses used in women did not lead to acne, hirsutism, or excessive libido; and this may suggest that the diagnosis was correct, since there is said to be little tendency to masculinization from administration of testosterone to women with hypopituitary cachexia (Simmonds' disease). The addition of thyroid, with or without desoxycorticosterone acetate and salt, seemed to afford no additional benefit. There seemed to be no necessity for the addition or substitution of cortisone or corticotropin in long-term treatment, and possibly these drugs should be reserved for severe cases. A firm diagnosis of incomplete pituitary insufficiency may be difficult to reach when the manifestations are few or when no clear cause is apparent, or when controversial issues are raised. Even when appropriate symptoms accompany a pituitary tumor or begin abruptly after obstetric shock, the presence of other diseases may divert attention from an endocrine lesion.

Cancer of Pancreas: Review of 41 Cases. H. H. Rubio Jr., A. M. Gore, M. A. de los Santos and P. O. Bolo. Medicina. **14:** 217-234 (Aug.) 1954 (In Spanish) [Buenos Aires, Argentina].

The authors reviewed the records of 41 selected patients with diagnosis of cancer of the pancreas in the Instituto Modelo of Buenos Aires. The group included 30 men and 11 women. The majority of the patients were between the ages of 50 and 70 years. None of the patients had had an operation on the digestive tract prior to consultation. In all cases the diagnosis was confirmed by an operation or at autopsy. The cancer was located in the head of the pancreas in 30 cases, in the body of pancreas in 6, and was diffuse in 2 cases. All the tumors but one were epitheliomas. One was a sarcoma of the tail. Loss of weight, abdominal pain, and jaundice were the earliest symptoms in 40, 32, and 30 patients respectively. Loss of weight was progressive and marked. Abdominal, mainly supraumbilical, pain appeared early in 26 out of the 32 patients who had this symptom. In tumors of either the head or the body, pain was indefinite in location. One of the two tumors of the tail was painless all through the course of the disease. The other tumor of the tail was a sarcoma, with early marked pain in the epigastrium. Fourteen of the patients who had nocturnal pain reported amelioration of pain by avoiding dorsal decubitus. Jaundice appeared early in 13 of the 30 patients who had jaundice. Five of the six patients with cancer of the body of the pancreas were anicteric through the course of the disease. The only patient with extracephalic cancer who had jaundice was one with cancer of the body and tail who had a clinically palpable gallbladder and metastases in the hepatic hilum. The gallbladder was not palpable in 12 out of 30 patients with jaundice. One tumor of the body and one of the tail were palpable early in the course of the disease. The cause of hospitalization was loss of weight and pain in only 4 out of the 41 patients. In the remaining 36, the organic lesions were advanced when the patients were hospitalized, especially so in the six patients with extracephalic cancer, in whom the period of time between hospitalization and death was short. All the other symptoms of cancer of the pancreas appeared late. According to the authors, an early diagnosis of cancer of the pancreas is difficult. A presumptive diagnosis of cancer of the pancreas is indicated in all patients over 45 years of age who report loss of weight and periumbilical pain that subsides if the dorsal decubitus is avoided. The diagnosis is confirmed if diabetes, hyperthyroidism, tuberculosis, and cancer in other locations are ruled out. Jaundice develops in patients with cancer of the head of the pancreas and diffuse cancer and when the biliary tract is already involved by cancer. Its appearance constitutes an indication for an exploratory laparotomy for a precise diagnosis.

Comparison of Indirect and Direct Methods of Measuring Arterial Blood Pressure. H. Van Bergen, D. S. Weatherhead, A. E. Treloar and others. Circulation **10:**481-490 (Oct.) 1954 [New York].

Indirect and direct methods of measuring arterial blood pressure were compared in 70 surgical patients ranging in age from 2½ to 82 years (the average was 52 years). The readings were taken in the immediate postoperative period. A discrepancy between the direct and the indirect methods was frequently noted. The greatest discrepancy was in the young hypertensive group of patients. The decreasing order of accuracy for indirect methods of measurement is: oscillometric, auscultatory, and palpatory. The trend of indirect readings is to fall increasingly below the direct measurement as blood pressure rises. The usual practice of employing one indirect technique only is not subject to criticism if the observer regards such a pressure estimation as an index to the true arterial pressure. Changes in blood pressure can be detected by such a method, but no conclusion should be drawn concerning absolute values.

Effects of Diet in Essential Hypertension: III. Alterations in Sodium Chloride, Protein and Fat Intake. F. T. Hatch, A. R. Wertheim, G. H. Eurman and others. Am. J. Med. **17:**499-513 (Oct.) 1954 [New York].

The unmodified rice-fruit diet of Kempner, providing 300 gm. of rice daily, sucrose and fresh or water-packed fruits and fruit-juices, was found to be efficacious in essential hypertension but an unpalatable, monotonous regimen that could not be administered for prolonged periods of time to most patients. In order to obtain information with regard to diversification of the regimen without sacrifice of the benefit derived from it, the effects of adding sodium chloride, protein, fat, and vegetables to the basic diet were studied in 26 men between the ages of 40 and 66 and 21 women between the ages of 36 and 67, most of whom were in advanced stages of hypertensive cardiovascular disease. These modifications of Kempner's diet were studied separately and, with the exception of sodium chloride, also collectively in a specially devised low-sodium diet of approximately normal food composition. The experiments were conducted in a hospital environment under controlled conditions. Addition of 3 gm. of sodium chloride per day to the rice diet from the time of its institution prevented any lowering of blood pressure. In patients who had shown a significant antihypertensive response to the rice or special low-sodium diets, the addition of 0.5 gm. of sodium chloride per day in tablet form usually did not elevate the blood pressure. Addition of larger amounts of sodium chloride usually did evoke significant rises in blood pressure. In patients who had responded favorably to the unmodified regimen no loss of beneficial effects was noted when 12 to 50 mg. per day of low-sodium protein, 20 to 40 gm. per day of fat, and 200 gm. per day of vegetables were added singly or together to the diet. Decreases in blood pressure similar to those obtained with the rice diet occurred in three patients who were given a special low-sodium diet without previous treatment with the Kempner regimen. The results of these investigations bear out the initial impression that the effective antihypertensive principle of the rice diet is the restriction of sodium ions. The findings further

suggest that in those patients with essential hypertension in whom beneficial effects of stringent sodium chloride deprivation have been obtained, clinical improvement may be preserved on a more liberal diet than the Kempner rice regimen. Thus a major obstacle to the dietary treatment of hypertension, namely, the patient's ultimate failure to continue the rigorous program, may be overcome.

Evidence for Relationship Between Sodium (Chloride) Intake and Human Essential Hypertension. L. K. Dahl and R. A. Love. A. M. A. Arch. Int. Med. **94:**525-531 (Oct.) 1954 [Chicago].

A group of 547 adults was classified as having low, average, or high sodium chloride intake at meals. The incidence of hypertension among the three groups was studied. No hypertension was found among 65 persons who had a low sodium chloride intake; there were 17 hypertensives among the 243 persons in the average intake group; 24 of the 239 persons classed as having a high intake had hypertension. The mean age and nutritional state were similar in all three groups; however, among the 41 members classed as hypertensive about half were either overweight or obese, whereas among the persons in the average and high intake groups as a whole this weight distribution occurred in less than a third, and it was found in only 23% of the persons in the low intake group. After the manuscript had been submitted for publication, the series of observations was extended to include 897 persons, divided among the salt intake groups as follows: low, 98; average, 402; high, 397. Hypertension was found in 1, 30, and 40 members of these groups respectively. In both series, the figures obtained cannot be explained by chance alone. The hypothesis is put forth that some minimum level of sodium intake must be exceeded for the development of essential hypertension but that, while necessary, sodium is not of itself sufficient for development of the disease.

Gastrointestinal Repercussions of Portal Hypertension. P. Alessandrini. Policlinico (sez. prat.) **61:**1133-1144 (Aug. 30) 1954 (In Italian) [Rome, Italy].

Portal hypertension has marked repercussions on the gastrointestinal tract, and the localization of these secondary disturbances helps to establish whether the hypertension is due to a diffuse process (cirrhosis) or to a circumscribed one (neoplasm, parasitic abscesses, or cysts). The functional disturbances secondary to portal hypertension involve the motility of the digestive tract, the absorbing power of the intestinal mucosa, and the secretory function of the digestive glands. The muscular fiber cell is, however, the first to be affected, because it is sensitive to the variations of the oxygen content of the capillaries that are caused by the speed of the circulation. The functional gastrointestinal changes caused by portal hypertension are spasm, diffuse or segmental atony, hypermotility, or motor paresis. The difference in motor reaction (atony or spasm) is correlated with many factors, but it depends mainly on the degree of the hypertension. Studies of the author and his school revealed that often a mild stasis results in a tendency to atony of the intersphincteric zone and an increased tone of the sphincters, while the opposite phenomenon occurs when the stasis is marked. With regard to the gastric secretion, these studies indicated that with a mild hypertension the acidity values are increased and vice versa. One of the commonest effects of even the slightest hypertension is a decreased tone of the cardia and the lower part of the esophagus. This is evidenced by eructations and regurgitations, especially during the climax of the digestive process, that is, when the blood flow into the abdomen is highest and hypertension therefore more evident. In some cases the presence of a portal hypertension may be suggested by a sense of postprandial epigastric tension, in others by a late pain simulating an ulcer. It also causes a diminution of the absorbing power of the intestine, which results in dyspeptic thirst, opsiuria, and tympanites, and these are the most important premonitory signs of portal hypertension. Besides the marked tympanites in the small intestine, it also causes alterations of the defecation rhythm, with constipation when the stasis is mainly in the inferior mesenteric vein, and a hemorroidal state in the rectum. One of the main clinical characteristics of the functional alterations secondary to portal hypertension is their tendency to be more or less uniformly distributed to the entire abdomen, so that the concurrent presence of esophageal, gastric, intestinal, and pancreatic symptoms should suggest the presence of portal hypertension. The clinical examination should be accompanied by roentgenography, endoscopy, and coprology. The early detection of a slight reversible portal stasis on the basis of its gastrointestinal repercussions has great prophylactic value because permanent and irreversible anatomic alterations can be prevented.

Chemoprophylaxis of Sleeping Sickness with the Diamidines. D. Gall. Ann. Trop. Med. **48:**242-259 (Sept.) 1954 [Liverpool, England].

Gall reviews the history and the present status of the use of diamidines in the prophylaxis of trypanosomiasis (sleeping sickness). The first experimental work on the use of the diamidines as prophylactics against sleeping sickness was carried out in 1940 and 1941 and the first field trials in 1942. Thereafter propamidine and pentamidine were widely adopted as prophylactics, particularly in the Belgian and French African territories. The drug of choice is now pentamidine, as diisethionate or dimethyl sulfonate, administered intramuscularly in doses of 3 to 4 mg. per kilogram of pentamidine base, at intervals of from 6 to 12 months. The toxic effects are mostly immediate, mild, and of small importance. Prophylaxis campaigns have mainly been undertaken either where tsetse eradication has been impracticable for reasons of vegetation, lack of labor, or lack of funds, or for the protection of special communities, such as labor gangs at high risk. A properly conducted campaign of two or more injections is capable of reducing the incidence to less than 0.1% or even to zero in the protected population. The greater the proportion of the population protected and the smaller the migratory element, the greater are the chances of success. Prophylaxis has proved successful when methods of mass survey and treatment, in the absence of tsetse control, have been only partly effective. After regular prophylaxis has been discontinued, recrudescence or reintroduction of the infection is to be expected within a period of a few years. Prophylaxis may fail in patients with early infections who were not detected at the preliminary survey, chiefly because trypanosomes are not found in the peripheral blood, the disease having progressed to central nervous system involvement.

Carriage of Staphylococcus Pyogenes Var. Aureus in Human Nose. J. C. Gould and E. J. McKillop. J. Hyg. **52:**304-310 (Sept.) 1954 [London, England].

In health, Micrococcus (Staphylococcus) pyogenes may be isolated frequently from many areas of the skin but appears to be more constantly present in the anterior nares, and it is probably from this site that the organism is disseminated. This paper records an investigation of the nasal carriage of M. pyogenes var. aureus, with special reference to the duration of carriage, change in status of carriage, and bacteriophage type of the strains isolated. Over 500 medical students were examined for nasal carriage of M. pyogenes at weekly intervals over a period ranging from 3 to 12 months. Nasal carriers were classified as persistent, intermittent, and occasional. Of the students, 39% were persistent or intermittent carriers in whom the Micrococcus was believed to colonize the skin of the vestibule of the nose; 42% were occasional carriers in whom the Micrococcus was only a chance inhabitant of the nares. Micrococcus pyogenes was isolated from the anterior nares of persistent carriers on at least 90% of the occasions on which they were examined and was of the same phage type on each occasion. From intermittent carriers it was isolated less regularly, but on at least 10% of occasions on which they were examined; and it was still found to be of one phage type. M. pyogenes was isolated at less than 10% of swabbings from occasional carriers, and at each the organism was of a different phage type. Eighty-nine per cent of persistent and intermittent carrier strains and 54% of occasional carrier strains could be typed with phage filtrates. Bacteriophage typing has been used for the

epidemiological study of outbreaks of micrococcic infection, and it is suggested by the authors that typability with phage be used as a criterion of pathogenicity for M. pyogenes.

Nasal Carriage of Staphylococcus Aureus in the General Population and Its Relationship to Hospitalization and to Penicillin Therapy. P. M. Rountree, B. M. Freeman and R. G. H. Barbour. M. J. Australia **2**:457-460 (Sept. 18) 1954 [Sydney, Australia].

A survey was made of the nasal carrier rates of Micrococcus (Staphylococcus) pyogenes var. aureus in a series of 200 blood donors. Forty-nine per cent of the persons were nasal carriers, and 13.4% of these were carrying penicillin-resistant strains, an increase of 6% over the incidence found three years previously, in 1951. There appeared to be an association between nasal carriage of resistant strains and a past history of penicillin therapy and/or hospitalization. Investigation of the nasal flora of 153 hospital patients showed that 17.6% had acquired new strains of micrococci in their noses by the time they left the hospital. Studies by other workers indicate that the resistant strains are transmitted to the household contacts of patients who have left the hospital, thus accounting for a rise in resistant strains among the population that has neither been hospitalized nor has received penicillin therapy. The authors estimate that penicillin therapy at the present time would be effective in six out of seven persons with acute micrococcic infection. If the trend toward increased resistance continues, this figure can be expected to change.

Use of Anti-Inflammatory Agents in Infectious Diseases. A. Ravina, M. Pestel and R. Thielen. Presse méd. **62**:1265-1267 (Sept. 25) 1954 (In French) [Paris, France].

The authors studied the anti-inflammatory and antithermal properties of the pyrazole derivatives and showed their importance in nonrheumatic diseases. Favorable results were obtained with drugs like phenylbutazone and phenylbutazone combined with aminopyridine in pneumopathy, pulmonary embolism, infections of the pharynx and upper respiratory passages, phlebitis, lymphangitis, and Hodgkin's disease. In each case, the clinical course of the disease was altered by a rapid fall in temperature and the disappearance of general and local inflammatory phenomena. Care was taken to limit the duration of treatment enough so that the body's natural reaction to the disease was not entirely suppressed, since it is protective in nature. The drugs were beneficial in causing an improvement in the patients' general condition, thus allowing the agents of specific therapy to act more rapidly, unhampered by excessive defense reactions. This method has the practical advantages of shortening the treatment period and reducing hospital expenses.

Survey of 200 Cases of Snake-Bite in Virginia. J. T. Wood. Am. J. Trop. Med. **3**:936-943 (Sept.) 1954 [Baltimore].

This survey is based on a study of the medical records of 196 persons hospitalized after injuries by venomous snakes and four other cases due to snake venenation, including two fatal ones, provided by the Department of Vital Statistics of Virginia. The patients who were hospitalized were treated in 95 different hospitals. Medical records mention the species of snake responsible in 134 cases. Copperheads (Agkistrodon contortrix mokasen) inflicted 119 of these bites and timber rattlesnakes (Crotalus horridus), 12. The ratio of male to female victims was 2:1. In Virginia 96% of the snake-bite lesions are sustained during the five months from May through September, with a peak incidence of 32% in July. It was also noticed that snake bites were frequent in children, in that more than one-fourth of all snake bites in this series involved children 8 years of age or less; most of these cases involve bites on the lower extremity. These facts, plus the knowledge that the accidents occur near the children's homes, indicate that control of venomous snakes near rural homes and on farms is required to reduce the incidence of these injuries. Cases of snake-bite among older persons (16 to 84 years) are often associated with occupation. Accidents while working on the farm, logging, trapping, cleaning ditches and sewers, picking apples, and cutting and mowing are common. The body area sustaining the bite is related to the severity of poisoning and the mortality rate. Fatalities from upper extremity bites are twice as numerous as those from lower extremity bites. Head and trunk bites are from two to three times as dangerous as those on the hands and arms. Ninety per cent of the 168 patients with ophidian venenation on which therapy data were available received antivenin. Those patients who were treated without the use of the specific antiserum were either strongly sensitized to horse serum, as evidenced by positive skin tests, or were treated in areas where the antivenin was unavailable. One ampul of 15 cc. of antivenin was administered to 88% of the patients; the others received from 10 to 75 cc. No fatalities were recorded in the series of hospitalized patients, but there was a distinct clinical impression that the incidence of urticaria, pruritus, and angioneurotic edema was higher in those patients receiving the horse serum preparation.

Murine Typhus Fever in Southwest Georgia, January 1945-January 1953. W. H. Stewart and V. D. Hines. Am. J. Trop. Med. **3**:883-889 (Sept.) 1954 [Baltimore].

A study of 452 cases of murine typhus fever occurring in southwest Georgia during the eight year period terminating in January, 1953, showed a seasonal peak of rural cases during the summer but an even distribution of urban cases throughout the year. Incidence rates were about twice as high in rural as in urban areas. Age-specific incidence rates were low in childhood, rising to a peak during the fourth and fifth decades. Farmers and their families made up 70% of the cases studied. The mean titer of the Weil-Felix test was high in the first week and then rapidly declined, whereas the mean titer of the complement fixation test reached a peak during the second week and remained high over the next 50 to 60 weeks, after which it slowly declined. In patients treated with chlortetracycline (Aureomycin), there was a consistent lowering of mean titers for the complement fixation test, but little effect on the Weil-Felix titers was demonstrated.

SURGERY

Pulmonary Tuberculoma. A. E. Grimes and H. Redd. J. Kentucky M. A. **52**:678-681 (Sept.) 1954 [Louisville, Ky.].

Solitary circumscribed lesions in the lungs frequently cause no symptoms and are discovered on roentgenologic examination. They present a challenge, because it must be ascertained whether they are tuberculous or neoplastic. The tabulation of 541 cases of solitary or coin lesions of the lung, which Grimes and Redd collected from the literature, shows the incidence of malignancy among such lesions. Those found in sanatoriums for tuberculous patients are mostly nonmalignant, whereas those in cancer clinics show a high incidence of malignancy. There were 180 malignant lesions, or 33%, among the 541 collected cases. In differential diagnosis of solitary lesions of the lung one must consider primary neoplasm, metastatic tumors, encapsulated effusions, cysts, abscesses, local pneumonitis, benign tumors, granuloma, and tuberculoma. In most cases it is necessary to resort to thoracotomy and excision of solitary lesions to obtain a pathological diagnosis. Enucleation of the tuberculoma, due to the possible presence of microscopic tubercles in the adjacent parenchyma, is not advisable. The peripheral location of these lesions permits a wedge resection with little danger of a postoperative pleuritis. At the time of thoracotomy, thorough examination of the lung is performed and the definitive procedure is determined by the findings. Of 48 patients operated on by two authors, whose cases are included in the 541 mentioned above, 30 were subjected to wedge resections, 2 to segmental resections, and 16 to lobectomy. While it is important to preserve as much functional lung tissue as possible, it may be necessary to do multiple wedge resections, especially to eliminate all nodules in the upper lobe.

Structural Changes in Human Aortic Homografts: Study of 10 Cases. M. E. De Bakey, O. Creech, D. A. Cooley and B. Halpert. A. M. A. Arch. Surg. **69**:472-482 (Oct.) 1954 [Chicago].

Aortic bifurcation homografts were used to replace excised segments of the abdominal aorta for arteriosclerotic aneurysm in eight patients and for thrombo-obliterative disease in two. All

patients were men between the ages of 38 and 70 years. All the homografts used in these patients were obtained from adults between the ages of 27 and 42 years who were dying primarily as a result of injuries. Two of the grafts were preserved by refrigeration in balanced salt solution and eight by freeze-drying. The period of preservation of the grafts before they were used varied from 7 to 76 days. Nine of the graft recipients died, and one is alive and well. Autopsies were performed on those who died, and the abdominal aorta was transected just below the diaphragm and removed in continuity with the graft to a point below the bifurcation of the common iliac arteries. In the recipient who is still alive, occlusion of the right iliac artery just distal to the anastomosis made it necessary to excise the distal part of the homograft, and a second homograft was implanted, which is still functioning. Morphological studies of the 10 specimens, made from 1 to 360 days after transplantation, permitted chronological reconstruction of the changes as they evolved after transplantation. At the time of implantation the human homograft has no intima; the media is acellular, and only its elastic fibers are intact. The graft loses much of its structural identity after transplantation and is in part replaced by fibrous connective tissue of the host. Minute hemorrhages occurring in the media from rupture of newly formed capillaries apparently provide the nutritional stimulus to the formation of new connective tissue. The elastic fibers of the media remain intact and support the graft during the period of connective tissue growth, reinforcing the graft from the outside. Satisfactory healing occurs at the anastomoses in the presence of extensive atherosclerotic changes in host vessels. No retrogressive changes, atherosclerotic or calcific, were noted in one graft 360 days old. The healing between host vessels and graft thus demonstrated that the until recently propagated doctrine that atherosclerotic changes in the vessels of the host preclude satisfactory healing along the lines of anastomosis was erroneous.

Experimental and Clinical Studies on Arterial Homo- and Hetero-Grafts Preserved in Alcohol: Preliminary Report. S. Kimoto, S. Sugie and M. Tsunoda. A. M. A. Arch. Surg. **69**:549-563 (Oct.) 1954 [Chicago].

Of 22 dogs on which experiments were made with arterial homografts preserved in alcohol, an artificially produced defect in the abdominal aorta was bridged with grafts preserved in pure ethyl alcohol in 14, with grafts preserved in 70% ethyl alcohol in 7, and with grafts preserved in 75% ethyl alcohol in one. Additional experiments were made with arterial heterografts obtained from human beings within two to four hours after death, kept in pure or 70% alcohol, and transplanted on 21 dogs. It is of great significance that the transplantation of heterografts preserved in alcohol was just as successful as that of homografts preserved in a living condition, thus introducing a new simpler method of arterial transplantation. Convinced by the result of these experiments, the authors transplanted homografts preserved in alcohol, and heterografts obtained from dogs and sheep and stored in alcohol, into four men and seven women between the ages of 23 and 62 years. Homografts preserved in pure alcohol were used in three patients, homografts preserved in 70% alcohol in three other patients, and heterografts stored in 70% alcohol in the remaining five patients. Arteriography showed that the transplantation was successful in 7 of the 11 patients. In two of the seven patients an aneurysm of the abdominal aorta was removed, and the defect was bridged with a human aortic graft in one and with an aortic graft from a sheep in the other. One of these two patients was followed for 15 months up to the time of completion of this paper. The result obtained with the transplantation of the graft was excellent. At present, the authors prefer 70% ethyl alcohol to pure alcohol for preservation of the grafts, since 70% alcohol is more effective in sterilizing the grafts in storage and since grafts preserved in 70% alcohol more quickly regain their physiological softness when immersed in salt solution.

Bilateral Adrenalectomy for Advanced Carcinoma of Breast with Preliminary Observations on Effect of Liver on the Metabolism of Adrenal Cortical Steroids. M. Galante, J. M. Rukes, P. H. Forsham and others. Ann. Surg. **140**:502-518 (Oct.) 1954 [Philadelphia].

Thirty-one unselected patients with advanced metastatic carcinoma were subjected to adrenalectomy and oophorectomy; other therapy, including roentgen rays, androgens, or estrogens, having failed to arrest the progression of the disease. In this preliminary report, therapeutic experience in 29 patients, with postoperative follow-ups of 2 to 25 months, is presented. The weight of the adrenal glands, their functional reserve, and the results of surgery on the metastatic lesions were not found to be correlated. There was no direct correlation between clinical improvement and the histological picture of the primary lesions, although the best results to date have been obtained in two cases of adenocarcinoma. The finding of objective evidence of improvement in five cases of predominantly undifferentiated carcinoma is at variance with Huggins' observation "that no case of undifferentiated carcinoma improved." The authors of this paper tried the following procedure in one of their patients. After removing both ovaries and the right adrenal gland, the blood from the left adrenal gland was shunted through the splenic vein into the portal circulation. This patient has done well without any substitution therapy. Urinary excretion of hydrocortisone-like substances was found to be unchanged following transplantation of the adrenal into the portal system, whereas 17-ketosteroids showed marked diminution, and estrogens appeared to be essentially absent from the urine. Further work is in progress in three patients similarly treated. The authors point out, however, that the shunting procedure represents a purely experimental procedure at this time. Because of the technical difficulties involved, this type of surgery carried a greater hazard than bilateral adrenalectomy, and since long-range results must be awaited, it is in no way designed to replace established procedures. The authors conclude that in women who have failed to respond to established methods of therapy, bilateral oophorectomy and adrenalectomy appears to offer an additional therapeutic step. While 22% of the patients showed objective improvement, subjective benefit was obtained in 45%. The transitory nature of the arrest of the metastatic spread makes this a palliative procedure only.

Distal Intramural Spread of Carcinoma of Rectum and Rectosigmoid. R. S. Grinnell. Surg., Gynec. & Obst. **99**:421-430 (Oct.) 1954 [Chicago].

According to Grinnell there has been considerable controversy among surgeons as to the choice of operation for carcinomas of the upper rectum and rectosigmoid. This area is approximately that portion of the intestine lying between 5 to 18 cm. from the dentate line. The choice lies between an abdominoperineal resection on the one hand and anterior resection or some other type of sphincter-saving procedure on the other. The question is whether or not the less radical procedures can offer the patient as good a chance of cure without sacrifice of the anal sphincter as the more radical operation. Grinnell presents the results of studies on 126 operative specimens of carcinoma of the lower colon and rectum. The specimens included those removed by either abdominoperineal, anterior, or sigmoid resection. Retrograde intramural spread from 1 to 7 cm. in extent was found in 18 out of 93 carcinomas situated from 5 to 18 cm. above the dentate line. It occurred in 9, or over one-half, of the 17 tumors removed as palliative resections and in 9, or 12%, of 76 tumors removed as curative resections. The maximum distal intramural spread in a curative resection was 4 cm. in the 93 tumors lying 5 to 18 cm. above the anus, 2 cm. in the 5 tumors lying below 5 cm., and 1.5 cm. in the 28 tumors lying above the 18 cm. level. In the 5 to 18 cm. group there were two other curative resections with retrograde spread of 4 cm. Retrograde spread was chiefly by way of the lymphatics, usually those of the subserosa and perirectal fat. It appeared to be caused by the blockage of the upward flow of lymph by lymph node metastases and permeation in continuity of the obstructed lymphatics. Occasionally it occurred as the result of permea-

tion of a vein and rarely from direct extension in the muscularis from the tumor itself. The maximum spread by vein was 3.5 cm., and by direct extension 2.8 cm. Retrograde intramural spread is usually found in advanced tumors of high grade malignancy, with a much higher incidence of node metastasis, vein invasion, and annular involvement of the intestine than those without distal spread. It occurs most often in tumors so advanced that only a palliative resection can be done. Even in curative resections, the prognosis for the patient is poor. In curative resections on tumors between 5 to 18 cm. above the dentate line, distal intramural spread did not appear to have great significance. A margin of 5 cm. of uninvolved intestine would apparently have been adequate in every case. Less than this seems inadvisable, and more is preferable. Sixty-seven of 76 patients had no retrograde spread.

Pathogenesis of Ascites and Consideration of Its Treatment. J. L. Madden, J. M. Lore Jr., F. P. Gerold and J. M. Ravid. Surg., Gynec. & Obst. **99:**385-391 (Oct.) 1954 [Chicago].

Madden and associates show that there is no unanimity of opinion regarding the pathogenesis of ascites. They review the studies of several investigators and the theories based on these studies. They themselves postulate that the primary factor in the pathogenesis of ascites is a blockage not of the inflow tract, the portal venous bed, but of the outflow tract, the hepatic (systemic) veins. To confirm the logic of this postulate, a comparative study of the pattern of the intrahepatic circulation in the normal liver and in the diseased liver, both with and without ascites, was undertaken. The intrahepatic circulation was studied by the injection of varied colored solutions of neoprene latex type 571 and corrosion of the liver parenchyma with commercial hydrochloric acid (30%). A yellow-colored solution was used in the portal vein, red in the hepatic artery, and blue in the hepatic (systemic) veins. Liver specimens from 23 fresh cadavers were injected and corroded. In 3 specimens the liver was normal, and in 20 specimens it was diseased. In 14 of the diseased specimens cirrhosis of the liver was present. On the basis of the results of their studies, the authors conclude that in cirrhosis of the liver with irreversible ascites the obstruction is due to an obliterative fibrosis of the intrahepatic systemic venous bed. In cirrhosis of the liver with acute but reversible ascites, the obstruction is primarily due to intrahepatic cellular edema and congestive hepatomegaly secondary to both protein and electrolyte imbalances. In congestive heart failure and chronic constrictive pericarditis the obstruction of the outflow tract is due to intrahepatic cellular edema and congestive hepatomegaly secondary to chronic venous stasis in the thoracic segment of the inferior vena cava. Preexisting or naturally occurring portacaval shunts are believed of frequent occurrence. Such were present in four of eight unselected fresh cadaver specimens. The authors are opposed to treating cirrhosis of the liver with irreversible ascites by the performance of extrahepatic portacaval shunts, ligation of the hepatic artery, or by the establishment of an arteriovenous fistula between the hepatic artery and the portal vein. They feel that the ideal treatment is to increase the vascular bed of the outflow tract of the liver. A method that they suggest and that they used in two patients consists in the formation of an artificial "bridge" between the portal and systemic veins by the application of magnesium trisilicate powder to abraded areas over the superior surface of the liver and the inferior surface of the diaphragm.

Prevention of Adhesions in Peritoneal Cavity by Transplantation of Amnion. B. S. ten Berge and The Tik Lok. Nederl. tijdschr. geneesk. **98:**2659-2665 (Sept. 18) 1954 (In Dutch) [Amsterdam, Netherlands].

Adhesions in the peritoneal cavity resulting from surgical trauma or other causes may not only cause pains, but they may hinder the intestinal function, produce ileus, cause sterility through closure of the tube, hinder ovulation, and, by preventing contraction of the uterus, they may cause menstrual disturbances. After citing various measures that have been suggested to prevent adhesions, ten Berge and The Tik Lok described their experiences with amniotic membrane, which had been used by Snaith in 1947 in the course of salpingolysis and in neurological operations. In experiments on rabbits the authors demonstrated that no adhesions occur when peritoneal defects are covered with amnion. From September, 1952, to March, 1954, they used sterilized and preserved amniotic membrane in 12 patients to cover raw peritoneal surfaces. Some patients, after having been subjected to tubal operations because of sterility, failed to become pregnant, although salpingography showed the tube to be patent. The authors feel that this is due to the impairment of the oviducts by chronic inflammation. They use amniotic membrane for uterine implantation of the ovary rather than tubal operations. They obtained good results in peritoneal adhesions and also in relaparotomies for adhesions and in laparotomies where extensive adhesions might be expected. Inspection with the culdoscope demonstrated that adhesions in the abdominal cavity can be prevented by transplantation of amniotic membrane.

Effect of Thyroidectomy in Rheumatoid Arthritis. W. A. I. Laine, K. J. Vainio and T. E. Holopainen. Ann. Rheumat. Dis. **13:**250-251 (Sept.) 1954 [London, England].

Laine and associates point out that literature reports mention relation between joint symptoms and thyroid function. It has been pointed out that thyroid medication can alleviate the joint symptoms of hypothyroid patients, that in hyperthyroidism symptoms of rheumatoid arthritis can be considerably improved by thyroidectomy, and that typical symptoms of rheumatoid arthritis may develop following strumectomy. In order to obtain more information about the correlation between rheumatoid arthritis and strumectomy, the authors reviewed the cases of patients with rheumatoid arthritis observed at their hospital in 1941 and found that 48 had been subjected to strumectomy. Twenty of them, who had been operated on quite a long time before the onset of rheumatoid arthritis, were omitted from this series. The remaining 28 had been operated on either while suffering from rheumatoid arthritis or immediately before its onset. Assuming that any effect of strumectomy, either beneficial or harmful, on rheumatoid arthritis might be due to the surgical intervention per se, they also studied a control series of 97 patients with rheumatoid arthritis who had been subjected to major operations such as laparotomy or orthopedi operations. A table classifying the two groups with regard to the postoperative course of the disease demonstrates a difference between the strumectomy series and the control series. A majority of the patients in the former group showed aggravation of rheumatoid arthritis after operation. In seven cases there was a sudden onset of rheumatoid arthritis either immediately or about one month after strumectomy. Not a single patient with thyrotoxicosis showed improvement in joint symptoms after the strumectomy. The only patients in whom improvement could be noted were those who had pressure symptoms. Both toxicosis and pressure symptoms had been present in the cases in which strumectomy was followed by aggravation of rheumatoid arthritis. The authors admit, however, that in Finland both nodular goiter and rheumatoid arthritis are common and that the prodromal symptoms of both conditions may be confused.

NEUROLOGY & PSYCHIATRY

Laughing Spells in Patients After Lobotomy. H. C. Kramer. J. Nerv. & Ment. Dis. **119:**517-522 (June) 1954 [New York].

According to Kramer quite a few patients show signs of elation and even euphoria after prefrontal lobotomy. It often appears as if the emotions that have been restrained by tension and anxiety suddenly burst out in frolicsome freedom. This first stage disappears gradually and gives way either to improvement or relapse. Laughing spells after prefrontal lobotomy present a kind of involuntary laughter that is difficult to interrupt. This paper is concerned with four patients who showed these laughing spells to a marked degree. This type of laughing does not show the characteristics of a healthy relaxing laughter; it rather gives the impression of a compulsive explosion. The maximal laughing spells continued through the first postoperative year. In some cases they subsided some-

what later, though in others they persisted almost three years. The four patients laugh as if all inhibitory mechanisms had been released. Their laughter is completely meaningless; it seems as if they would rather cry than laugh. Their facial expression is distorted and tense. The organic mechanism of the emotions is a rather complex one, but it is most probably intimately connected with the diencephalon and its cortical connections. This may account for the variety of results achieved by prefrontal lobotomy. In studying a number of cases, the author became aware that generalizations such as change in personality, child-like regression, loss of initiative, and spontaneity may refer to some of the cases but certainly not to all of them. Symptoms may be obliterated by the operation only to return later on. There may be some truth in the concept that the age at onset of symptoms is the most important factor in predicting the outcome of treatment. The older the patient when the symptoms develop, the more favorable may be the result of any treatment. Inasmuch as prefrontal lobotomy releases patients from the strait-jacket of inhibition, it may also cause loss of inhibition to such an extent that previously controlled functions may become disorganized and extreme.

The Menstrual Cycle and Insulin Coma Treatment in Schizophrenia. S. Merlis and S. T. Michael. J. Nerv. & Ment. Dis. **119:**512-516 (June) 1954 [New York].

Mental illness may be characterized not only by distortion of psychosexual development but also by somatic manifestations of disturbed sex function. Thus menstruation was absent in 38% of a representative sample of mental patients selected for electric shock treatment, and this treatment itself may further modify menstruation if it has not been already suppressed by the illness. The records of female patients who were treated by insulin coma at the New York State Psychiatric Institute between the years 1942 and 1952 were reviewed. Only patients who menstruated in the hospital preceding insulin coma were included in the study. It was found that insulin coma interferes with the regularity of the menstrual cycle, causing varying degrees of amenorrhea. The amenorrhea was significantly greater in patients who were classified recovered, by comparison with other patients. The authors feel that the greater lengthening of the menstrual cycle in schizophrenic patients who benefited most from insulin coma treatment may provide a lead for investigation of the mechanism of insulin coma. Paradoxically, the greatest lengthening of the menstrual cycle was seen in patients in the hebephrenic subgroup, which is usually considered the least tractable to therapy of any kind.

Familial Multiple Sclerosis. R. Amyot. Presse méd **62:**1347-1349 (Oct. 6) 1954 (In French) [Paris, France].

Three cases of multiple sclerosis occurring in sisters are described. Autopsy was performed in one of the two who died before the time of writing, and the brain lesions were examined histologically. Statistics reported in the literature place the incidence of multiple sclerosis in the general population at about 1 in 2,000. Familial incidence of the disease exceeded the general incidence by 12 times as much in one report and by 20 times as much in another report that was composed only of cases occurring in siblings. It is hoped that further studies will clarify the nature of the genetic factor in the pathogenesis of multiple sclerosis.

Brain Changes in Patients with Extensive Body Burns. L. Madow and B. J. Alpers. A. M. A. Arch. Neurol. & Psychiat. **72:**440-451 (Oct.) 1954 [Chicago].

Madow and Alpers describe the neuropathological findings in two patients with extensive burns. The findings seem to fall into three main groups: (1) cerebral edema and blood vessel changes, (2) ganglion cell changes, and (3) alterations in the axis cylinders and myelin. The cerebral edema was more marked in some portions of the cortex than in others and was seen grossly as swollen gyri and obliterated sulci. Hyperemia was observed grossly both on the surface of the brain and in coronal sections. There was some subarachnoid hemorrhage in the second case. Within the parenchyma the blood vessels were engorged, and the capillaries in the gray matter were especially prominent. In the white matter frank hemorrhages were present. The ganglion cell changes were of the toxic type. Most of the cells were swollen, with loss of much of the Nissl substance, and had either eccentric or extruded nuclei. These changes were fairly consistent in most areas studied, but there appeared to be somewhat more loss of nuclei and more shadow cells in the hypothalamus. Two chief changes were found in the myelin. In many small areas the myelin was swollen, giving a rarefied appearance seen chiefly around blood vessels, without cellular reaction. The second type of myelin change consisted of small areas of destruction of the myelin and axis cylinders, with replacement by gitter cells and some swollen astrocytes. Several of these pathological alterations are irreversible and may cause convulsions, mental deterioration, or a postencephalitic-like picture. The patients presented here survived only 12 and 16 days, an insufficient time in which to observe many neurological or behavioral changes. There have been a number of reports of clinical changes referable to the central nervous system observed in patients with severe burns. The authors cite some of these reports, pointing out that the chief clinical features observed in these reports included convulsive seizures, postencephalitic-like symptoms, and mental deterioration. The authors feel that these clinical features can be explained by the changes they observed. The convulsions are due probably to these three pathological conditions: (1) the cerebral edema, (2) the toxic ganglion cell disease early in the process, and (3) the formation of glial scars after the acute reaction has subsided. The postencephalitic-like picture, as well as the mental deterioration, can also be ascribed to the ganglion cell disease. There is still much debate as to whether toxins are liberated in patients with severe burns or whether the alterations are due to a circulatory, and, therefore, an anoxic state. The authors feel that the changes suggest a toxic rather than an anoxic effect.

Cerebral Intravascular Pressure in Chemically Induced Hypotension. B. Woodhall, G. L. Odom, C. R. Stephen and others. A. M. A. Arch. Surg. **69:**496-499 (Oct.) 1954 [Chicago].

Readings were made of arm cuff pressures and of intravascular radial artery and cerebrocortical artery pressures before and during induction of chemical hypotension in 26 patients subjected to hazardous neurosurgical procedures. Of the 26 patients, 9 were operated on for the control of congenital cerebral aneurysms and 2 for arteriovenous aneurysms; large meningiomas were removed from 6 patients, and lobe resections were performed on 9 patients with gliomas. Hypotension was induced by Pendiomid (N,N,N′,N′-3-pentamethyl-N,N′-diethyl-3-azapentane-1,5-diammonium dibromide) in 16 patients, by hexamethonium chloride in 8, and by trimethaphan camphorsulfonate (Arfonad) in 2. Since comparable intravascular cortical pressures were sought, the hypotensive state was always induced after exposure of the cerebral cortex. There were rather significant variations in pressure obtained by the arm cuff method and the systemic arterial pressure as recorded in the radial artery. The actual fall in systemic arterial pressure induced by ganglionic-blocking drugs may be more profound than that demonstrated by the arm cuff method and may approach a level incompatible with cortical function. When systemic arterial pressure reaches a critical level of 50 to 60 mm. Hg, no arm cuff pressure can be heard. This observation emphasizes the inadequacy of arm cuff pressures under such circumstances. Only the use of radial intravascular pressure recordings gave a continuous and accurate index of the degree of induced hypotension. The authors' studies also indicated the fact that, for these purposes, the arterial pressure within the cranial cavity approximates that found within the radial artery.

Dystrophia Myotonica and the Occurrence of Congenital Physical Defect in Affected Families. J. E. Caughey and J. Barclay. Australasian Ann. Med. **3:**165-170 (Aug.) 1954 [Sydney, Australia].

Various reports in the literature on dystrophia myotonica have mentioned the high incidence of congenital defects in the patients' families. The authors describe 10 patients with con-

genital defects in five families afflicted with dystrophia myotonica. The conditions included all grades of mental deficiency, congenital cataract, harelip and cleft palate, talipes, spastic paraplegia, hernias, and syndactyly. These defects may occur in the "dystrophic generation" but are more likely to occur in the children of the "dystrophic generation."

Migraine and Tension Headaches: Clinical Study of 2,000 Cases. A. P. Friedman, T. J. C. von Storch and H. H. Merritt. Neurology **4**:773-778 (Oct.) 1954 [Minneapolis].

The basic mechanism of most headaches is stimulation of pain-sensitive structures in and around blood vessels. Two thousand patients with migraine and tension headaches have been studied at the Montefiore Hospital headache clinic during the past seven years. Migraine represents a definite clinical entity and may be defined as that form of headache that is characteristically paroxysmal, periodic, unilateral, and throbbing. It is preceded by an aura and is usually associated with vomiting. A history of migraine in the family was present in 65% of the patients studied. Women predominated in the series by a ratio of more than 2 to 1 (75%). The headaches begin as a rule before the age of 20 (55%), onset after 40 being exceptional. Attacks occurred less than once weekly in 60% of the patients; daily headaches were extremely infrequent. The personality pattern most commonly seen in this group consisted of characteristics of inflexibility and shyness in childhood, giving rise to adult perfectionism, rigidity, resentment, ambitiousness, and efficiency: in short, a constitutional predisposition to sustained emotional states. The syndrome is not limited to the head but may manifest itself in widespread disorganization of bodily function. Treatment of the patient with migraine headache, a person who reacts poorly to stress and has definite personality problems, is complex and requires individualization. Symptomatic treatment is best accomplished with ergotamine derivatives, in particular with Cafergot, a compound of ergotamine and caffeine. Prevention of an attack is best accomplished by psychotherapy. Tension headache is defined as that type of headache occurring in relation to constant or periodic emotional conflicts. These headaches are usually bilateral and may be accompanied by a variety of associated signs, including anxiety, nausea, and vomiting. Frequency and duration are variable but in general are much greater than those of migraine headaches. Sixty-five per cent of the patients studied were women, A family history of headache was present in 40%. The age of onset was between 20 and 40 years for 55% of these patients. The same person may have both migraine and tension headaches. As in the case of migraine headaches, the best prophylaxis for tension headache is psychotherapy. Symptomatic relief can be obtained in most cases with analgesics and sedatives. The present knowledge about the psychosomatic mechanisms involved in these headaches is reviewed.

A New Aspect of Treatment in Psychosomatic Disorders. W. H. Stevens. Hawaii M. J. **14**:30-35 (Sept.-Oct.) 1954 [Honolulu, T. H.].

Stevens stresses the need for a shorter and more effective psychotherapy and shows that a new, basic concept of therapy of psychosomatic and personality dysfunctions is being developed, which has been identified by terms such as noninterference therapy, interview therapy, nondirective analysis, client-centered therapy, nondirective psychotherapy, abbreviated depth therapy, and minimal activity therapy. The author feels that the term self-directive best describes the central theme that is common to all of them. Therapy progresses most deeply and most rapidly to a successful conclusion when the physician allows the patient's own self-expression to direct him to his own emotional conflicts. This kind of psychotherapy is a warm, emotional communication between patient and therapist, from which the patient emerges with permanently improved feelings and attitudes toward himself and toward the world around him; and it is tension-relieving therapy. The emphasis is on treatment, not diagnosis. The complete and searching history so essential to good diagnosis and treatment in organic medicine is not essential in the treatment of many of the psychogenic disorders, and, in fact, may hinder the progress of psychotherapy. Another basic characteristic of self-directive psychotherapy is that the healing power comes from within the patient and not from the physician. The modern therapist is merely an assistant, a catalytic agent whose therapeutic presence helps to facilitate a reaction within the patient, resulting in autonomic recompensation or emotional reintegration. This inevitably leads to expanded insight and better self-understanding, which is so important in healthy personality functioning. "Feelings don't listen" to directions from outside, or, as every layman knows: "A man convinced against his will is of the same opinion still!" The kind of insight that is really effective comes from within the patient and is usually phrased in terms best suited to him, rather than in the "gobbledygook" of the psychiatrist. It is therapeutically much more valuable for the patient to be able to say with real feeling: "I've been a weak-kneed, asinine nincompoop!" than it is for the physician to tell him that he is a passive-dependent, psychosexually fixated person with an unresolved Oedipus complex. Psychotherapy is not a problem-solving procedure in itself. The emphasis is on the person behind the problem. Self-directive psychotherapy is different from some older techniques, but it works, sometimes in a rapid and dramatic way. If the therapist is mature enough to resist his tendency to ask questions, to make the obvious interpretations, to give advice and reassurance, or to allow the patient to slide comfortably into a dependent transference relationship, which may take months or years to resolve, then the patient's own anxiety and inherent power for growth will usually carry him past the "point of no return." Very shortly he will find himself progressing under his own power, with no further need for the therapist's assistance. He has been able to abandon his psychosomatic refuges, to drop his psychoneurotic defenses, and now he is ready to lay aside his psychotherapeutic "crutches." This is the goal in therapy. Any patient with a "decompensated personality," whose total anxieties and tensions have exceeded his psychophysiological threshold and are spilling over into behavior disorders or distressing physical symptoms, is a candidate for self-directive psychotherapy.

Psychotherapy in Mental Hygiene Clinic. M. J. Tissenbaum. Psychiatric Quart. **28**:465-477 (July) 1954 [Utica, N. Y.].

The number of mental hygiene clinics that feature psychotherapy as a main treatment technique has increased in recent years. These clinics are mostly sponsored by hospitals, state mental hygiene systems, the Veterans Administration, and community funds. They vary greatly in size and in adequacy of personnel. Tissenbaum raises several questions with regard to these clinics: Is psychotherapy in an outpatient clinic in any way comparable to private psychiatric care? Does clinic psychotherapy reduce the need for hospitalization of potentially psychotic patients? He presents some data based on six years of intimate association with the Brooklyn regional office mental hygiene clinic of the Veterans Administration. He shows that outpatient clinic psychotherapy is of necessity largely "supportive" in nature, but, by this means, patients get relief from their anxieties, so that at the least they may remain employable and socially functioning. Mental hygiene clinics reduce the need for hospitalization in many instances. In an outpatient situation, analytically trained and oriented therapists apparently do not provide any better therapy or produce better results than therapists not so trained. Formal residency training in psychiatry appears not to have produced better therapists, as far as the experience of this clinic is concerned. Intangible factors, such as the personality of the therapist and the latter's attitude toward the effectiveness of his treatment, are vital elements leading to good results. Psychotherapy is a medical function and responsibility.

Problem Drinking and Industry: Policies and Procedures. S. C. Franco. Quart. J. Stud. Alcohol **15**:453-468 (Sept.) 1954 [New Haven, Conn.].

The aim of the procedure described was threefold: (1) the early recognition of the employee with a drinking problem; (2) rehabilitation of the employee when warranted; and (3) the establishment of a consistent basis for termination of employment when rehabilitation is fruitless. In industry "chronic alcoholism" and "problem drinking" are looked on as the same

condition, since in both conditions repeated or continued overindulgence interferes with the efficient performance of work assignment. The foreman and the supervisor are in the best position to recognize the early signs of uncontrolled use of alcohol among men working under them. Of course, the supervisor and foreman should receive instruction to enable them to understand the objectives of the procedure and to assist them in recognizing the earliest signs of problem drinking. The following signs are regarded as indicative of the early phase of a drinking problem: (1) consistent tardiness or absence on Monday morning and leaving early on Friday afternoon; (2) unexplained disappearance from an assigned post during duty; (3) recurring excuses for absence due to minor illnesses, or too frequent off-duty accidents; (4) personality change in a previously good worker. The medical department has the responsibility of determining whether the employee is, in fact, an alcoholic and of estimating the extent of the drinking problem. This examination is carried out by an internist who has special experience with alcoholism. A complex condition like alcoholism does not allow categorical classification. The basis of the diagnosis of alcoholism is the loss of control over the drinking occasion or over the amount of drinking. Recurrent absenteeism due to overindulgence or an extended "bender" is a definite sign of loss of control. If the medical department confirms that the employee has a drinking problem, he is offered the opportunity for rehabilitation through company facilities; he may choose to try Alcoholics Anonymous, or place himself under the care of a physician of his own choice. Follow-up experience to March 1, 1954, on the original group of persons who were treated under the first phase of the alcoholism procedure in the four years from January, 1948, to December, 1951, can be summarized as follows. There were 155 persons in the group, of whom 11 were subsequently referred to the consultation clinic. For the balance of this group the "recovery rate" has been 69 out of 144 cases, or 48%. The majority of these persons have been followed more than five years. It was also learned that a few of the employees who left the company rehabilitated themselves later through other agencies, particularly Alcoholics Anonymous, and are now gainfully employed. In 105 alcoholics who were referred to the consultation clinic the results at first appeared to be deceptively good: there were nearly 80% "improved"; but when the period of observation was extended beyond a year a more accurate picture was obtained. Of the 59 persons who completed more than a year of follow-up, 37 (63%) appear to have their problem under control. This trend is encouraging, because the greatest percentage of losses occurs in the first year.

GYNECOLOGY & OBSTETRICS

Effect of Sex Hormones on Premenstrual Complaints. J. Ufer. Geburtsh. u. Frauenh. **14:**723-730 (Aug.) 1954 (In German) [Stuttgart, Germany].

According to Ufer there is no general agreement with regard to the pathogenesis of the so-called premenstrual syndrome, which is particularly frequent during the years preceding the menopause. Many observations indicate that the premenstrual difficulties are due to a temporary hyperfolliculinemia. It has not been established, however, whether this hyperfolliculinemia is due to an excessive production of estrogenic (follicular) hormone during the premenstrual period, or whether it is the result of a disturbed equilibrium with other sex hormones, or whether it is perhaps due to toxic products of decomposition of estrogenic hormone. In a table the author summarizes the reports of a number of investigators who believe that estrogenic hormone plays a part in the development of the premenstrual syndrome. The theories advanced in these reports could not always be verified, and since premenstrual disturbances occur also in women with signs of virilism, in whom increased production of the estrogenic hormone does not seem probable, the causal role of an excess of estrogenic hormones seems doubtful. The studies reported by Ufer aimed to determine the action of various hormones on premenstrual complaints. Studies were made with estrogenic hormone, with progesterone, with testosterone, and with a combination of testosterone and progesterone. It was found that the estrogenic hormone intensifies premenstrual disturbances, whereas testosterone propionate and progesterone effect improvement. A combination or mixture of progesterone and testosterone propionate had a particularly favorable effect, and Ufer recommends it for the treatment of premenstrual disturbances.

Assay of 17-Ketosteroids and Estrogens in Benign Tumors of Female Breast. D. Riva. Sett. med. **42:**359-362 (June 30) 1954 (In Italian) [Florence, Italy].

It is known that if the balance between the function of the hypophysis, the ovaries, and the adrenals is normal, the hormonal stimulus to the breast and the development of the latter are also normal. An alteration of this balance may lead to changes of neoplastic character in the breast. The biochemical examination of the urinary catabolins of the urinary steroids reflects with notable accuracy the endocrine situation of the human organism. On this basis, Riva studied the urinary excretion of the 17-ketosteroids and the estrogens in 20 women with fibroadenoma of the breast in an attempt to determine the presence of possible hormonal changes. The histological findings in these women, most of them between 30 and 60 years of age, were those of cystic adenofibroma in seven, simple adenofibroma in four, intracanalicular adenofibroma in four, pericanalicular adenofibroma in four, and peri-intracanalicular adenofibroma in one. Three determinations were made for each patient. The results indicated an increased excretion of the estrogens in 16 patients, whereas the 17-ketosteroid excretion was only slightly below the normal values in all the patients. Thus the presence of an imbalance in the hormonal cycle of these women was proved.

A Study of Environmental Factors in Carcinoma of Cervix. E. L. Wynder, J. Cornfield, P. D. Schroff and K. R. Doraiswami. Am. J. Obst. & Gynec. **68:**1016-1052 (Oct.) 1954 [St. Louis].

This communication presents a study of the possible role of environmental factors in the production of cervical cancer. Factors suspected to play a role were studied by the interview technique. The material consisted of patients with cancer of the cervix in several American and Indian hospitals. American control groups were represented by patients with pelvic diseases other than cancer of the cervix. Due to basic differences in incidence rates, analysis of non-Jewish whites, Jewish whites, and Negroes was carried out separately. Similarly, Indian data were analyzed separately for Hindu, Moslem, Christian, and Parsi patients. Patients with cervical cancer had a significantly earlier age at first coitus and age at first marriage than the control groups. The age at first coitus was earliest among Negro controls and latest among Jewish controls. In the Indian study, the age at first coitus was earliest among Hindu and Moslem women and latest among Christian and Parsi patients. Multiple marriages were found to be much commoner among patients with cervical cancer than among control patients. Patients with cancer of the cervix were more frequently exposed to uncircumcised males than the corresponding control patients. The use of contraceptives remains a questionable variable because of the difficulty associated with obtaining information on the frequency of use. Evidence on the effect of abstinence suggests that abstinence after menses may not be as important a factor as has been supposed. Data on syphilis suggest that the statistical association between this disease and cervical cancer could be accounted for by the earlier age at first coitus among patients with cervical cancer with syphilis, as compared to patients with cervical cancer without syphilis. Epidermoid cancer of the cervix has been noted in women exposed only to circumcised males and in virgins, and other causal factors than those involving coitus and lack of circumcision must therefore exist. Males of population groups with a high incidence of cervical cancer have poor penile hygiene. The present results are compatible with the concept that those population groups having a late age at first coitus and first marriage and a low remarriage rate, whose men are circumcised, have a lower rate of carcinoma of the cervix.

Emotional Component in Trichomonas Vaginitis. S. F. Moore Jr. and J. W. Simpson. Am. J. Obst. & Gynec. **68:**974-980 (Oct.) 1954 [St. Louis].

Moore and Simpson are of the opinion that Trichomonas vaginitis is a psychosomatic symptom that occurs as a result of changes in the vaginal physiology, which in turn are produced by emotional stress. Such a theory accepts the trichomonad as the specific infectious agent but holds that the organism is incapable of producing symptoms except when the vagina is conditioned by the effects of disturbed emotions. This concept is based on the observation that symptomatic vaginal infestation with Trichomonas invariably is associated with a significant degree of emotional stress and that such stress precedes the onset of symptoms. A carefully taken history in patients with Trichomonas vaginitis will usually elicit one or more other symptoms characteristic of disordered emotion. These may be nervousness, fatigue, weight changes, sleep disturbances, digestive disorders, headache, menstrual irregularities, or painful breasts, to mention only a few commoner ones. Psychosexual disorders almost invariably are present, and these often include frigidity as well as dyspareunia. These patients much prefer to discuss their "discharge and itching" rather than these other symptoms, and therefore a hastily taken history usually will fail to disclose the presence of these other important physiological evidences of a tension state. Leading questions relating to the patient's emotional state are avoided at the time of the initial interview, but any remarks that she may make concerning the cause of her symptoms are noted. As soon as the diagnosis is established, some form of local treatment is used, but this is not essential to the patient's ultimate recovery, and the authors have successfully managed a number of cases with no local therapy at all, but it does provide the patient with prompt relief of the discharge and itching and again is a means of establishing confidence. It is important to keep local symptomatic therapy to a minimum to avoid fixing the patient's attention on her vaginal symptoms. Some of her discomfort may be due to previous overtreatment. The proper psychological approach is all important. The passive hostility that some of these patients display initially may be difficult to manage. The undue amount of anxiety centered on their symptom may be expressed in terms of fear of venereal disease, fear of cancer, or fear of offensive odor, or they may feel these things without expressing them. The patient is told that the symptoms are made possible through nervous tension acting on the body, and this explanation may be expanded as much as the patient's understanding and receptiveness will permit. Just how far the gynecologist should proceed with his psychotherapy will depend on his ability, his experience, and his interest. It may prove necessary to refer the patient to a psychiatrist for more psychotherapy. Other supportive measures consist of sedation, daily periods of rest with general decrease of physical activity, and abstinence from sexual intercourse. Sedatives are useful. A large number of patients with chronic Trichomonas vaginitis are employed wives who work 14 or 15 hours a day, including time spent at their household chores. These women should be encouraged to give up their jobs or obtain help with their home duties. At the onset of treatment, especially if the vaginitis is acute, abstinence from sexual intercourse is advised. The authors have found that their therapeutic results in Trichomonas vaginitis have improved greatly since they have managed it as a psychosomatic symptom. They were not successful in all cases, but recurrences have been far less frequent than when they treated the condition on a purely somatic basis.

Carcinoma of the Ovary. W. F. Mengert. South. M. J. **47:**918-922 (Oct.) 1954 [Birmingham, Ala.].

Of 36 women with primary carcinoma of the ovary treated at the Parkland Hospital in Dallas, Texas, 27 had adenocarcinoma, 4 granulosa-cell tumor, 2 Krukenberg tumor, 2 teratoma, and one thecoma. Only 4 (11.1%) of the 36 patients operated on are living and well after five years. Primary carcinoma of the ovary is bilateral in about one-half of the patients, the uterus is involved in about one-third, and the fallopian tube is involved in about one-seventh. Ovarian carcinoma does not have early signs or symptoms; the disease is insidious in onset and is a "silent" lesion until late in its course. Prophylactically, all ovarian neoplasms should be removed. Surgical exploration should be done in every women with possible ovarian carcinoma even if the situation before the operation seemingly is hopeless. Specific and acceptable treatment is bilateral salpingo-oophorectomy and total hysterectomy. Postoperative external irradiation is of dubious benefit. Because of the intense, widespread enteritis resulting from irradiation that necessarily includes the entire peritoneal cavity, one must be sure, in a given patient, that the treatment is not worse than the disease. The recent introduction of colloidal gold 198 offers a new method of distributing surface irradiation to the peritoneum with only a fraction of the morbidity resulting from external irradiation; it is still too early to assay the cancericidal effect of this technique. At the present, about 20 to 35% of women with primary carcinoma of the ovary properly treated can expect to survive without recurrence for five years.

PEDIATRICS

Intracranial Calcification After Tuberculous Meningitis. M. Latorre, J. Howard and R. Merello. Rev. chil. pediat. **25:**266-270 (June) 1954 (In Spanish) [Santiago, Chile].

Intracranial calcification of tuberculoma after recovery from tuberculous meningitis in children is frequent. It is generally believed that it can cause epilepsy or mental retardation. The author observed 31 patients who had tuberculous meningitis when they were between the ages of 9 months and 13 years. Follow-up observations covered a period of from two to six and one-half years. A roentgen examination of the head in lateral position was made in all patients. Single or multiple intracranial calcifications in the middle or in the posterior fossa were observed in one of three patients with mental retardation and in 10 of 28 mentally and neurologically normal children. The calcifications in the middle fossae keep a strict anatomic relationship with the basal cisterns, those of the posterior fossae with the cisterna ambiens and the cisterna magna. A patient had convulsions as sequel of an infarct with encephalomalacia and hemiplegia. The calcifications in this case were located far from the encephalomalacic area and in relation with the basal cisterns. There was no relation between calcification and sequels, either convulsions or retardation. The authors believe that intracranial calcified tuberculoma in patients with normal intelligence and without neurological symptoms represent primary tuberculous foci. Intracranial calcified tuberculoma in patients with mental retardation has no significance in regard to the phase of tuberculosis. The mental disorders in these cases show lesions of encephalomalacia that are far away from the site of location of calcifications. Intracranial calcification of tuberculomas does not constitute any danger for possible meningeal reinfection.

Complications of Myocarditis in Children. O. Saphir and M. Field. J. Pediat. **45:**457-463 (Oct.) 1954 [St. Louis].

Of 45 children with myocarditis who died and came to autopsy at Michael Reese Hospital in Chicago between 1946 and 1954, seven boys and eight girls between the ages of 2 weeks and 13 years with isolated (Fiedler's) myocarditis were selected by the authors for their study, which was undertaken to ascertain what, if any, complications may actually be caused by the myocarditis per se and not by a primary infectious disease that originally may have caused the myocarditis. At autopsy, in none of these 15 patients was there found any disease that is sometimes associated with myocarditis. Outstanding and completely unexpected were the findings of minute emboli in the coronary arteries in five cases, in the pulmonary arteries in eight cases, and in the small arteries of the brain in five cases. The sources of these emboli apparently were small mural thrombi in the heart, although these were found only in three cases. These thrombi were discovered by chance in the available section of the myocardium and adjacent endocardium. It is possible that more thrombi would have been shown if more tissues had been available at the time of this study. The fact that often multiple emboli were present in

several organs indicates the heart as the source of the emboli. The cause of these emboli is obviously the inflammatory changes close to the endocardium, producing subendocardial edema or even localized foci of mural endocarditis predisposing to the formation of thrombi. From an analysis of the relevant case histories it seems quite clear that multiple emboli constitute a serious complication contributing to the death of the patients.

Congenital Goiter with Exophthalmos and Hyperthyroidism. K. A. Koerner. J. Pediat. **45**:464-469 (Oct.) 1954 [St. Louis].

The occurrence of congenital goiter with exophthalmos and hyperthyroidism is reported in a baby girl born of a mother in a hypothyroid state with pronounced exophthalmos. A review of the literature revealed 10 cases of hyperthyroidism in infants less than one year of age. Even more unusual is the occurrence of hyperthyroidism at birth; there was only one previous report of congenital hyperthyroidism. The author believes that his case is the second reported; it differs from the original case in that the mother conceived and delivered in a hypothyroid state and the baby lived. Because of the hypothyroid state of the mother, the hyperthyroid state in the baby was explained on the basis of stimulation of the fetal thyroid by excessive maternal thyrotropic hormone. Reports of thyrotoxicosis beginning in the neonatal period would lead one to believe that its course is quite benign. In the author's case of congenital hyperthyroidism, however, it was evident that without supportive care and the administration of strong iodine (Lugol's) solution for 42 days, to which the infant responded well, she would not have lived.

Pulmonary Resection in Children. J. Mathey. Pédiatrie **9**:583-592 (No. 6) 1954 (In French) [Paris, France].

The author has performed 112 lung resections in children since 1946. There were 97 interventions in 94 children of more than 18 months of age; the operative risk is minimal, but atelectasis is a relatively common postoperative complication (32 cases). There were three operative deaths and two late deaths, one of which had nothing to do with the operation. One case of empyema occurred, and there were no bronchial fistulas. The commonest indications for operation were bronchiectasis in 52 cases and abscesses in 13. Nineteen pneumonectomies, 41 lobectomies, 16 segmental resections, and 21 combined lobectomy and segmental resections were done in all. Long-term results were judged on the basis of chest appearance, radiological improvement, general growth, and functional activity. Lobar and segmental resections were remarkably well tolerated; of 37 cases the author counts 32 excellent results with complete functional and radiological recovery due to hypertrophy of the remaining portion of lung. Good results were also obtained in 11 of the pneumonectomies. Fourteen resections were performed in babies under 18 months of age, with an operative mortality of five. These young children are poor operative material in general, and their prognosis is made worse by the severity of their lesions and the long delay that is allowed to take place before operation. Four of the deaths occurred in children less than 6 months old.

UROLOGY

Renal Papillary Necrosis: Clinicopathologic Study. R. A. Garrett, M. S. Norris and F. Vellios. J. Urol. **72**:609-617 (Oct.) 1954 [Baltimore].

Renal papillary necrosis must be suspected in any diabetic patient with severe acute pyelonephritis, gross hematuria, renal colic, micturition of solid material, or rapidly progressive renal insufficiency not responsive to chemotherapy and diabetic management. The disease may be an acute, fulminating, rapidly fatal process, or it may be relatively chronic and progressive, with or without intermittent or terminal acute, fulminating episodes. Oliguria and anuria may occur. The severity of the diabetes does not seem to be a factor. The diagnosis can be confirmed by histological examination of sloughed tissue or pyelographic studies showing ring shadows. Ragged or isolated clubbed calices are strongly suggestive of this lesion. Six cases are reported, all with dysuria, hematuria, chills, fever, nausea, and vomiting. Four of the six patients reported characteristic renal colic. Three showed prostration and stupor, and two were in coma. All but one were diabetic females without urinary tract obstruction. The diagnosis of acute pyelonephritis was made in all cases and the organism or organisms established in four. Hypertension was found in only one patient. Two of the four studied at autopsy had intercapillary glomerulosclerosis. In one case, reported in detail, the diagnosis was established ante mortem by histological study of tissue obtained from the urine; this is the sixth such case in the literature. The clinical diagnosis of papillary necrosis in the nondiabetic is even more difficult. Only familiarity with the typical roentgenographic picture and careful histological study of tissue fragments submitted by the patient will lead to diagnosis. As to treatment, nephrectomy in the acute unilateral disease may be beneficial. In bilateral disease, diabetic control, antibacterial therapy, and promotion of free urinary drainage are the only courses of action available.

Clinical Experience with the Skeggs-Leonards Artificial Kidney. W. A. Keitzer, M. L. Ford and E. W. Miller. J. Urol. **72**: 629-638 (Oct.) 1954 [Baltimore].

This clinical experience with the Skeggs-Leonards artificial kidney comprises 25 patients and 32 applications. The kidney effectively dialyzes nitrogen excess in the blood and corrects electrolyte imbalance; it can also ultrafiltrate, if desired. Ultrafiltration was performed in one patient with chronic glomerular nephritis and anasarca and convulsions, with complete cure. About 40 clinical conditions are listed in which the artificial kidney might benefit a patient. These are divided into four main groups: acute irreversible uremia, chronic uremia, nephrotic states, and electrolyte imbalance. Contraindications would seem to depend on the fact that heparinization of the blood is necessary; however, if dialysis is the bleeding patient's only chance for life, it should not be withheld. Protamine sulfate used after dialysis quickly counteracts the effect of heparinization. Patients with malignant hypertension and uremia do not respond well to treatment by the artificial kidney. Good clinical responses were obtained in 14 dialyses, fair in 5, and poor in 10; 20 patients ultimately died. Illustrative cases of acute and chronic uremia and the one case in which ultrafiltration was performed are summarized.

OPHTHALMOLOGY

Oxygen Studies in Retrolental Fibroplasia: IV. Clinical and Experimental Observations. A. Patz. Am. J. Ophth. **38**:291-308 (Sept.) 1954 [Chicago].

Patz presents observations on the role of oxygen administration in retrolental fibroplasia that were carried out in the nursery for premature infants of the District of Columbia General Hospital. Between July, 1948, and December, 1950, a striking correlation between the number of days of oxygen therapy and the incidence of retrolental fibroplasia with residual membranes was demonstrated in premature infants. However, since there had been no controls, a rigidly controlled study was pursued from Jan. 1, 1951, through May 1, 1953. On an alternate admission basis, the infants were placed in either a high oxygen group or a curtailed oxygen group on admission to the nursery. Infants in high oxygen received 60 to 70% oxygen concentrations for 28 days or longer, whereas those in restricted oxygen received concentrations usually under 40% and only for specific clinical indications. The nursery routine was otherwise identical in the two groups. Oxygen tensions were controlled by incubator samplings at eight-hour intervals with a paramagnetic analyzer. The infants in each group were examined ophthalmoscopically at regular intervals and followed after discharge from the nursery in a special clinic until they were 6 months of age. Advanced retrolental fibroplasia developed in 12 of 60 infants with birth weights under 1,500 gm. in the high oxygen group and in one of 60

infants in the curtailed oxygen group. There were 21 cases of active disease that regressed to normal in the high oxygen group and 9 cases of active disease that regressed to normal in the low oxygen group. Paralleling the controlled nursery study, experiments were instituted to evaluate both the ocular and systemic effect of oxygen on several species of animals. When newborn rats, mice, kittens, and puppies were exposed to 60 to 80% oxygen concentrations for four days or longer, the characteristic microscopic changes of human retrolental fibroplasia were produced. Patz concludes that the clinical and experimental data justify the recommendation that oxygen therapy should be rigidly curtailed in the nursery for premature infants. The medical and nursing staff should be told about the dangers of the excessive use of oxygen. Except for emergency use, oxygen therapy should require a specific order. Every nursery should be equipped with an oxygen analyzer. Oxygen therapy should be ordered by concentrations rather than flow rate. Oxygen concentrations should be measured and recorded at least once daily.

Incidence and Severity of Retrolental Fibroplasia in Relation to Possible Causative Factors. L. Zacharias, W. E. Reynolds, J. F. Chisholm Jr. and M. J. King. Am. J. Ophth. **38**:317-336 (Sept.) 1954 [Chicago].

This report is concerned with infants of birth weight 4 lb. (1.8 kg.) or less admitted to the Boston Lying-In Hospital nursery for premature infants. It deals with the incidence and severity of retrolental fibroplasia in these infants in relation to birth weight, gestational age, length of nursery stay, duration of oxygen therapy, and time of birth. For the period 1938 through 1948, the study is retrospective; for the four years 1949 through 1952, the data were obtained in a follow-up program. During the 19-year period 1934 through 1952, the incidence rate of premature live births of infants 4 lb. (1.8 kg.) or less in weight, increased about twofold at the Boston Lying-In Hospital. There was also a distinct increase in total live births and a slight increase in the survival rate of premature infants. These changes resulted in more than a threefold increase in the number of infants weighing 4 lb. (1.8 kg.) or less at birth who were discharged from the premature nursery in that hospital. When the variables under consideration are considered separately, it is seen that the two measures of prematurity, birth weight and gestational age, vary inversely with the incidence and severity of retrolental fibroplasia; the two environmental factors, duration of oxygen therapy and length of nursery stay, vary directly with the incidence and severity of the disease. When the interrelationships among the several variables are taken into account, no one variable predominates in its relationship to retrolental fibroplasia. On the basis of the quantitative data in the follow-up study (1949 through 1952), the inverse relationship of gestational age to the occurrence and severity of retrolental fibroplasia is the most consistent. At the Boston Lying-In Hospital there have been wide variations in incidence rates of retrolental fibroplasia during the past 15 years, with an abrupt fall in the incidence of severe cases in 1949, in spite of the fact that oxygen therapy of long duration (an average of 23 days) was used during that year. Two changes in the care of premature infants occurred at the beginning of 1949: (1) the initiation of a program of repeated, periodic ophthalmoscopic examinations; and (2) a change from Hess beds to Gordon-Armstrong incubators. It is possible that in a Gordon-Armstrong incubator, in which it is necessary to raise the entire top each time the infant is handled, the oxygen concentration is lower and less constant than that in a Hess bed, in which only one of two small openings need be opened for treatment. Although the data in the present paper demonstrate that the duration of oxygen therapy is one of several factors related to both the incidence and severity of retrolental fibroplasia, they fail to support the idea that oxygen therapy, when measured as duration, is a major or even a necessary causal factor in the occurrence of this disease. It is possible that the relationship of oxygen therapy to retrolental fibroplasia is less dependent on the duration of therapy than on concentration or time of exposure.

Ocular Palsy as a Complication of Diabetes. N. Feldman. J. M. Soc. New Jersey **51**:379-380 (Sept.) 1954 [Trenton, N. J.].

Feldman presents the case of a man, aged 50, who was referred to him because of blurring and double vision. The man had had diabetes since 1942, and his insulin dosage had been 70 units of protamine zinc daily since 1950. He had not been under strict supervision, as he would consult a physician only when special difficulty arose. The significant finding was paresis of the right lateral rectus. The right eye could be abducted only slightly past the midline. On measurement, there was an esotropia. To enable the patient to get about, the left lens was occluded. This was consistent with the eye dominance; it also permitted further stimulation of the right eye. When the patient was next seen three weeks later, he was taking 80 units of insulin daily. The increased insulin requirement was due to an infection. Movement of the right lateral rectus had slightly improved. He still had diplopia when he tried to make use of both eyes. Two months later the paresis of the external rectus had disappeared. Ocular muscle palsy is a rare complication of diabetes; Waite and Beetham found the incidence of paralysis of extrinsic ocular muscles to be 0.4%. This frequency is less than one-tenth that of transitory refractive changes. Feldman points out that ocular palsy as a complication of diabetes is not only rare, it is also rarely mentioned. In reviewing recent textbooks on diabetes mellitus, Feldman found it mentioned in only one, that of Joslin. Management of this form of ocular palsy consists in preventing the diplopia by occluding one eye and in watchful waiting.

Hypopyon as the First Manifestation in a Case of Meningococcemia. J. Kasteleyn, C. B. Duyster and D. P. R. Keizer. Nederl. tijdschr. geneesk. **98**:2223-2225 (Aug. 7) 1954 (In Dutch) [Amsterdam, Netherlands].

Kasteleyn and associates present the case of a 5-year-old girl who had synechia and hypopyon of the left eye and a papular eruption on both legs. Spinal puncture at first yielded no fluid, but in a floccule at the point of the needle Micrococcus (Neisseria) meningitidis was found. Because of the serious condition of the eye and the presence of acute purulent meningitis, the child was treated with sulfathiazole, and 500,000 units of penicillin was injected intramuscularly and 20,000 units intrathecally once every day. The day after this treatment was begun spinal puncture yielded fluid with a cell count of 12,800, and low sugar and high protein contents. Intrathecal administration of penicillin was stopped on the third day, and on the fifth day the cell count of the cerebrospinal fluid had decreased to 281, the Nonne and Pandy reactions were mildly positive, the protein content of the spinal fluid had decreased, and the sugar content increased. Clinically the child seemed recovered, the skin eruption having disappeared except for tiny scars, but there was atrophy of the left eyeball, and the eye remained blind.

THERAPEUTICS

Treatment of Hypertension: Long-Term Results with Alseroxylon (Rauwiloid) Alone and Combined with Hexamethonium Administered Orally. E. Dennis, R. G. McConn, R. V. Ford and others. Postgrad. Med. **16**:300-307 (Oct.) 1954 [Minneapolis].

Of 90 patients with varying degrees of hypertension, 24 were treated with alseroxylon (Rauwiloid), a fractionally purified extract of Rauwolfia serpentina, alone, and 66 were given alseroxylon combined with hexamethonium for 12 months or more. In the early part of this therapeutic trial alseroxylon was given in doses of 32 mg. per day. It later became evident that so large a dose did not give additional benefit, and accordingly it was reduced to 8 mg. per day, administered in four divided doses of 2 mg. Alseroxylon was given in this dosage schedule when used alone or combined with hexamethonium. In 41 of the 66 patients who received combined treatment, alseroxylon was added after hexamethonium treatment in an attempt to stabilize blood pressure reduction, to obtain an added hypotensive effect and to lessen the severity of side-effects of hexamethonium. In the other 25 patients hexamethonium

was added to alseroxylon because of an inadequate response to the latter when used alone. Whether begun before or after alseroxylon therapy, administration of hexamethonium was started with 125 mg. given four times per day. This dosage was usually increased at weekly intervals until optimal reduction of blood pressure was achieved or until untoward side-effects precluded further increases. A reduction in the mean blood pressure (diastolic blood pressure plus one-third of the pulse pressure) of 20 mm. Hg or more was interpreted as a "response" to hypotensive therapy. A blood pressure of 150/100 mm. Hg or less was considered normotensive. In the 24 patients treated with alseroxylon alone for one year or more, the response was just as great after 12 months of continuous treatment as it was after the initial 6 months of therapy, indicating that tolerance did not develop. Fifty-nine (89%) of the 66 patients who received combined therapy with alseroxylon and hexamethonium maintained a 20 mm. Hg or greater reduction in upright mean blood pressure during the 6 to 12 months' period of treatment. About half of the patients became normotensive. The blood pressure reduction with combined alseroxylon and hexamethonium therapy was primarily orthostatic. The blood pressure reduction resulting from combined treatment was greater and more stable than with hexamethonium alone. The addition of alseroxylon to hexamethonium therapy decreased the incidence and severity of side-reactions.

Intramuscular Trypsin: Its Effect on 83 Patients With Acute Inflammatory Disorders. H. T. Golden. Delaware M. J. **26:** 267-270 (Oct.) 1954 [Wilmington, Del.].

A proprietary suspension of crystalline trypsin in sesame oil (Parenzyme) was given by the intramuscular route to 83 patients with a wide variety of acute inflammatory disorders. Two of the 83 patients had herpes zoster, 3 psoriasis, 3 atopic dermatitis, 4 cellulitis, 3 carbuncles, and 3 furuncles; one each had sycosis barbae, folliculitis with cellulitis, varicose eczema, tenosynovitis, abscess of finger, hand infection, palmar abscess, peritonsillar abscess, perialveolar abscess, or acute inguinal lymphadenitis; 2 had axillary lymphadenitis, one chronic pyelitis, 8 acute thrombophlebitis, one acute monoarticular arthritis, 4 acute subdeltoid bursitis, one chronic suppurative olecranon bursitis, 10 acute bronchitis, 2 chronic bronchitis, 8 acute bronchial asthma, 14 chronic bronchial asthma, and one each cough following atypical pneumonia, acute conjunctivitis, iritis, and otitis media. The dosage employed was the same in all patients treated, i. e., 2.5 mg. of trypsin or 0.5 cc. of the suspension per injection given deep into the buttocks. The usual course of treatment consisted of daily injections for four days, followed by one or two injections a week, or as needed. Of the 83 patients, only 2 patients, one with chronic pyelitis and one with otitis media, were therapeutic failures. Definite improvement was observed by the third day in 81 patients. In the eight patients with thrombophlebitis the clots seemed to disappear more rapidly as compared to other patients treated in the conventional manner before the advent of trypsin. The most striking and impressive clinical effect was the rapid subsidence of inflammation and pain to permit early ambulation. The patients with bronchitis and bronchial asthma remarked particularly on the duration of the relief obtained, which ranged from partial to complete. The results in bursitis were most gratifying. There was a striking anti-inflammatory effect and a rapid return of the patients to full productive activity. Undesirable side-effects consisted of pain and induration at the site of the injection in about one-third of the patients, necessitating withdrawal of administration of the drug in one patient. Since this paper was submitted, more than 200 patients have been given over a thousand injections; results confirmed the safety and efficacy of intramuscular injections of trypsin in the treatment of acute inflammatory disorders.

Experimental Investigation of Problem of Antilipemic Effect of Heparin. T. Inderbitzin. Schweiz. med. Wchnschr. **84:**1150-1154 (Oct. 2) 1954 (In German) [Basel, Switzerland].

Experimental lipemia was produced in dogs by the administration of 1 gm. of cod liver oil and 0.7 gm. of olive oil per kilogram of body weight. The animals then were given 80 to 160 units of a proprietary preparation of heparin sodium per kilogram of body weight, or 0.05 to 0.1 gm. of levanpolysulfonic acid ester per 30 kg. of body weight, or 0.05 gm. of glycogen, or 0.03 gm. of acacia (gum arabic) in 5% solution per kilogram of body weight. Results showed that substances of high molecular weight, such as heparin and other sulfurated carbohydrates of high molecular weight, and glycogen and acacia not only produce Staub's leukocyte phenomenon (peripheral drop of leukocytes) but also cause rapid disappearance of alimentary lipemia in the dogs. Of the two main fractions demonstrated in the electrophoresis diagram, the more slowly migrating B-fraction is particularly affected. The disappearance of B-lipoids is temporarily limited, depending on the dosage. After a shorter or longer interval, the lipoids that were removed from the circulation reappeared again in the same form in the peripheral blood. It may be assumed that lipoids are shifted to a receiver organ, and particularly to the pulmonary capillary area. This concept is supported by the fact that the course of the disappearance of lipoids after the injection of the various substances is parallel to Staub's leukopenic phenomenon, in which the granulocytes are retained in the area of the pulmonary capillaries and are there given off again. The antilipemic effect of glycogen as compared to that of heparin was prolonged; in addition glycogen exerted a quantitative influence on the A-lipoids in vivo. After the administration of heparin as well as after that of glycogen and acacia, respectively, the serum of the animals contained an antilipemic factor that is active in vitro and that induces clearing of the milky-turbid, lipemic serum. Heparin does not have any strictly specific function in the mechanism of shifting of lipoids or in the liberation of an antilipemic principle (serum factor).

Experiences with Treatment of Inoperable Bronchial Carcinomas with Polymethylolmelamin (Cilag 61). H. H. Fiedler and D. Schmalz. Medizinische **No. 39:**1309-1315 (Sept. 25) 1954 (In German) [Stuttgart, Germany].

A proprietary preparation of hexamethylolmelamin (Cilag 61) was given a therapeutic trial in 50 men and 4 women between the ages of 43 and 75 years with inoperable bronchial carcinoma who were admitted to the surgical department of the City Hospital in Erfurt, Germany, between August, 1952, and February, 1954. Treatment was started by intravenous route, with one injection of 0.3 gm. of the drug in 10 cc. of 5% dextrose solution in the morning and one injection in the evening. Intravenous administration was continued for two to three weeks and was followed by oral administration of 2 tablets (each containing 0.3 gm. of the drug) three times per day (total daily dose 1.8 gm.). A few patients first were given combined intravenous and oral treatment (0.6 gm. intravenously and 1.8 gm. orally per day); oral administration alone was continued after a favorable response to the combined treatment had occurred. The duration of the treatment varied from 21 to 77 days. Subjective improvement included disappearance of pain, increased appetite, decreased dyspnea and sensation of being ill. Objective improvement included increase in body weight, reduction of sputum, disappearance of venous stasis, improved blood cell count and vital capacity. Of 54 patients, 34 (63%) showed subjective improvement and 28 (52%) objective improvement. Of 21 patients in whom the amount of sputum was measurable, 13 had a pronounced reduction of sputum and in some of them sputum dried up completely; the amount of sputum was unchanged in 7, and in only one was it increased. Fifteen patients no longer had blood in their sputum. Seventeen patients showed increases in their body weight up to 13 to 16 lb. (6 to 7 kg.). The vital capacity was considerably increased in 16 patients. There was not a single case of leukopenia or agranulocytosis; toxic granulations disappeared, and the erythrocyte sedimentation rate did not show any essential change. Liver and renal function tests showed that liver and kidney were not impaired by the drug. The favorable effects of the drug depended on the stage of the disease and declined with increasing progress of the disease. The duration of the obtained improvement was short, lasting for two months only in most of the patients and for one month only in a few patients. Repeated

roentgenologic examinations did not show a regression of the tumor. The drug was well tolerated and there was no toxicity observed even with prolonged administration.

PATHOLOGY

Stellate Inclusion Bodies in Plasma Cell Myeloma and in Gaucher's Disease. C. J. Dawe. Am. J. Path. **30**:871-890 (Sept.-Oct.) 1954 [Ann Arbor, Mich.].

Spiny intracytoplasmic bodies, generally termed "stellate inclusions" or "asteroid bodies," are observed rather commonly within reactive, multinucleated giant cells associated with granulomatous inflammation. Conditions in which they have been reported include tuberculosis, blastomycosis, sarcoidosis, cryptococcosis, histoplasmosis, leprosy, talc granuloma, granulomatous mastitis, paraffinoma, adenomyoma of the uterus, granulomatous reactions in lymph nodes draining carcinoma, and foreign body reactions about dermoid cysts or suture material. After summarizing the staining, chemical, and physical properties of the stellate inclusions, Dawe reports the observation of stellate inclusions within neoplastic multinucleated cells in an unusual case of plasma cell myeloma and in the giant "Gaucher's cells" in two cases of familial splenic anemia (Gaucher's disease). In all three cases, the stellate inclusions were morphologically identical with those commonly found in granulomatous inflammation. The author feels that these observations are of some value, because these asteroid bodies have not, to his knowledge, been reported previously in these conditions; and new lines of approach to the nature of these bodies were thus opened. Some histochemical properties of stellate inclusions not previously described are reported. It does not appear appropriate to conclude that asteroid bodies are composed entirely or even in part of lipids. The asteroid bodies in the case of plasma cell myeloma gave positive xanthoproteic, Millon, and arginine reactions, indicating the presence of a protein component, although the possibility of adsorption artefacts was not excluded. Asteroid bodies in a case of noncaseating granuloma with a clinical picture of Boeck's sarcoidosis gave identical reactions. The progression of nuclear changes noted in the case of plasma cell myeloma suggests a concept as to the formation of stellate inclusions. It is postulated that the inclusions are composed, at least in part, of nuclear material released by rupture of the nucleus. The presence of lipids or lipoproteins in the cytoplasm of giant cells may favor the formation of asteroid bodies by facilitating nuclear rupture or by physicochemical effects on nuclear components subsequent to nuclear rupture. The observations reported support the view that stellate inclusions are not specific for any disease.

Camphor Poisoning: Anatomical and Pharmacologic Study: Report of a Fatal Case: Experimental Investigation of Protective Action of Barbiturate. A. G. Smith and G. Margolis. Am. J. Path. **30**:857-870 (Sept.-Oct.) 1954 [Ann Arbor, Mich.].

The case reported concerned a 19-month-old male infant who swallowed about 1 teaspoonful (5 ml.) of camphorated oil (20% camphor in cottonseed oil). He vomited within a few minutes but remained otherwise asymptomatic until onset of salivation and rigidity three hours later. Shortly after hospitalization, the infant vomited 300 to 400 cc. of coffee-ground material, which smelled of camphor. The subsequent clinical course was characterized by coma, repeated tonic convulsions, spasticity, and generalized hyperreflexia. Penicillin, fluid by hypodermoclysis, intermittent sedation by phenobarbital, nasal oxygen, and sponge baths were given. The child experienced recurring periods of apnea, which increased in severity, requiring artificial respiration. Tracheotomy proved of little value, and the infant died five days after the ingestion of camphorated oil. At autopsy, five hours after death, there was atelectasis and pulmonary edema, with severe congestion of both lower lobes. The right side of the heart was dilated. A 1 cm. agonal or postmortem perforation of the esophagus was found. There was focal mucosal congestion of the gastrointestinal tract. Central zonal congestion was observed in the liver, and the spleen and kidneys were congested. The brain was swollen and soft. Microscopic study disclosed extensive degenerative changes selectively involving neurons. The authors point out that this neuronal necrosis was never mentioned before in camphor poisoning in human subjects, but they were able to produce similar neuronal destruction in mice following the administration of multiple doses of camphor. The predominating pharmacological effect of camphor is stimulation of the central nervous system, and excessive doses produce convulsions. The authors attempted to evaluate the relation of vasoconstriction to camphor action by anatomic study of the cerebral circulation of animals before, during, and after camphor convulsions. These experiments on animals indicated that vasospasm has little to do with the production of neuronal necrosis by camphor. Because narcotics prevent the depletion of neuronal energy stores by the convulsant drugs, the authors investigated the action of camphor in relation to barbiturates. These studies suggested that the site of action of camphor is intraneuronal and that it acts on the oxidation cycle at a phase above the flavoprotein–cytochrome-B level of the cytochrome oxidase system. Camphor probably acts in a manner similar to other convulsants, causing rapid oxidation and depletion of high energy phosphorus compounds. The inhibition of camphor convulsions in mice by barbiturates is interpreted as the in vivo counterpart to in vitro studies that demonstrate barbiturate inhibition of oxidation on brain substrates. Anatomic studies of mice given camphor and barbiturates demonstrate that with prevention of convulsions by barbiturates there is also protection against neuronal damage. Since barbiturates similarly suppressed convulsions in the fatal human case, the authors conclude that the use of barbiturates in patients with camphor poisoning is therapeutically sound.

Concentration of Cells from Body Fluids for Cytologic Study. E. A. McGrew. Am J. Clin. Path. **24**:1025-1029 (Sept.) 1954 [Baltimore].

McGrew points out that a method of concentrating malignant tumor cells and of separating them from blood was reported by Fawcett, Vallee, and Soule in 1950. This method is based on differences in the specific densities of various cell types. It involves centrifugation of the cell suspension in a concentrated solution of albumin, on which the malignant cells float and through which the erythrocytes are forced down. The procedure as originally described by Fawcett and his co-workers has been slightly modified in this study for routine use. Thirty specimens of pleural, peritoneal, and pericardial fluid, with and without gross blood, were studied. Sixteen of these were interpreted as negative, 2 were reported as suspicious, and 10 as positive for malignant tumor cells. The direct smears of all specimens were reviewed, comparing the original sediment with the flotation specimen. In 10 of the 30 specimens sufficient blood was present in the original sediment to interfere with interpretation. In all of these, flotation succeeded in eliminating the blood as a confusing element, although a few red blood cells remained. The ease with which interpretation could be made was greatly enhanced in all the flotation specimens. In one specimen there was a clearly positive flotation smear, but it was impossible to detect malignant cells in direct smears or in sections prepared from paraffin blocks of the original sediment. In 11 of the specimens, 9 of which were positive, the concentration of nucleated cells was strikingly increased in the flotation layer. In some there were 10 to 15 times as many malignant cells per field as in the direct smears of the original sediment. Degenerative changes, in the form of cytoplasmic vacuoles, occurred in two of the flotation specimens. In the remaining 28, the additional time of 45 to 60 minutes before fixation, the exposure to the albumin, and the two saline washes resulted in no detectable morphological degenerative changes in the cytoplasm or nuclei of the cells. Somewhat lighter staining of both benign and malignant cells in the flotation smears was rather generally noticed, however. Neither this nor the degenerative vacuolation interfered with interpretation. The slight modifications made in the method described by Fawcett, Vallee, and Soule have been adopted as a matter of convenience, and no improvement in results was anticipated or is claimed. The author concludes that the method is practical as a routine laboratory procedure for cytological examination of bloody, purulent, or turbid fluids.

BOOK REVIEWS

Lung Cancer. By Seymour M. Farber, M.D., Associate Clinical Professor of Medicine, University of California Medical School, San Francisco. Publication number 187, American Lecture Series, Monograph in Bannerstone Division of American Lectures in Chest Diseases. Edited by J. Arthur Myers, M.D., Ph.D., F.A.C.P., Professor of Medicine and Preventive Medicine and Public Health, University of Minnesota Medical School, Minneapolis. Cloth. $4.75. Pp. 157, with 18 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W. Toronto, 2B, Canada, 1954.

The author points out that bronchogenic carcinoma is of concern to many types of specialist and of immediate concern to all who practice medicine. The book was written to present the current state of knowledge concerning this disease with particular reference to the role of the clinician. Many of the recommendations were based on 1,070 autopsies that were carefully studied both pathologically and clinically from records. The presenting symptoms, diagnostic procedures, and care of the inoperable patient are discussed in detail. The chapter on etiology is already largely out of date through no fault of the author, because progress in this field has advanced rapidly in the last two years. This particularly applies to the influence of smoking on the development of lung cancer. A discussion of Graham's views concerning histopathology does not appear to be an accurate representation of that author's present opinions. Many thoracic surgeons will disagree strongly with certain statements, as, for example: "It devolves upon the physician, not the surgeon, to exhaust his diagnostic techniques in an effort to prove inoperability, before the patient is actually submitted to surgical procedures."

Beyond the Germ Theory: The Roles of Deprivation and Stress in Health and Disease. Iago Galdston, M.D., editor. New York Academy of Medicine Book. Cloth. $4. Pp. 182, with illustrations. Health Education Council, 10 Downing St., New York 14, 1954.

This book goes beyond the germ theory in discussing the disease-producing effects of stress and deprivation as applied to clinical medicine and to public health. The papers reprinted in this volume were originally given at the 12th Annual Eastern States Health Education Conference sponsored by the New York Academy of Medicine. The contributors are all well qualified in their specialties. Animal and human behaviorism is presented in the light of deprivation and stress reactions as related to clinical and social medicine. The book extends the concepts of Claude Bernard, Walter Cannon, and Hans Selye—of the internal milieu, of homeostasis, and of the stress syndrome as it applies to all periods of life. The contents of this volume are profound, important, and easily read. Many new ideas, such as the application of the stress and deprivation theory to public health, are put forth. Anyone seriously interested in any aspect of patient care or public health should receive a great stimulus from this book.

Bentley's Text-Book of Pharmaceutics. Revised by Harold Davis, B.Sc., Ph.D., F.P.S. With collaboration of M. W. Partridge, B.Pharm., B.Sc., Ph.D., and C. L. Sargent, F.P.S. With contributions by W. A. Broom, B.Sc., F.R.I.C., H. A. Turner, B.Sc., Ph.D., F.P.S., and M. Turner, M.Sc. Sixth edition. Cloth. $10. Pp. 1078, with 302 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; Baillière, Tindall & Cox, 7-8 Henrietta St., Covent Garden, London, W.C.2, England, 1954.

This is the sixth edition of a well-known English textbook. For the English student of pharmacy, this text serves roughly the same primary function as Remington's *Practice of Pharmacy* has served for the American student, viz., as a basis for the study of pharmacy leading to a university degree and as a preparation for the English equivalent of our state board examination for licensure. The book incorporates the changes in pharmacy and therapeutics embodied in the British Pharmacopoeia of 1953. The application of the principles of physical chemistry to the science of pharmacy is commendable, but, in places, the encyclopedic style detracts from reading interest and intrinsic didactic value to the student. Since pharmacy draws on so many scientific disciplines for its fundamental material, we find this text, like many others in the field, running the gamut from chemistry and physics to biology and bacteriology. The tribulations attendant with a judicious treatment of so vast a field must be realized in any fair appraisal of a text in pharmacy. Within this frame of reference the revisers of this book have done a meritorious job. The use of a finer grade of paper resulted in an increase in quality and a concomitant decrease in bulk. Although specifically intended for the British student and/or practitioner of pharmacy, much of the basic information should prove of interest and value to the American reader as well. It is another fitting testimonial to the increasing quality of instruction in the "art of the apothecary."

Manual of Urology. By Alec W. Badenoch, M.A., M.D., Ch.M., Surgeon to St. Peter's Hospital for Stone and Other Genito-Urinary Diseases, London, England. Cloth. $15.75. Pp. 555, with 343 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1954.

Mr. Badenoch has written a rather comprehensive work on urology that he chooses to call a practical manual. In spite of the fact that several excellent works on urology have appeared in England and America in recent years, he believes there is a need for a book that contains the essentials of symptomatology, pathology, investigation, diagnosis, and treatment. The details of this work are taken from his own urologic practice based on the traditions of St. Peter's Hospital in London. He believes that this text should appeal to all general surgeons, in addition to those who limit their practice to urology. The chapters on development, applied anatomy, and physiology are adequate. The methods for investigation of a patient presenting a urologic problem are clearly and completely set forth. All clinical phases of urology are covered in a comprehensive but sometimes redundant manner. The chapter dealing with injuries of the genitourinary tract seems especially good. Many of the illustrations seem quite old and not up to our modern methods of visual expression. The bibliography is neither complete or representatively chosen. Much time and effort has been expended in compiling this work, and the practical points in many instances are worthwhile for the general surgeon who may be required to care for many patients with urologic problems. It is somewhat too exhaustive for medical students, but should be of value to residents and busy practitioners.

Fehler und Gefahren bei chirurgischen Operationen. Bände I und II. Herausgegeben von R. Stich und K. H. Bauer. Bearbeitet von C. Barthels, et al. Third edition. Cloth. 61 marks. Pp. 742; 743-1396, with 209 illustrations. Gustav Fischer, Villengang 2, Jena 15b, Germany, 1954.

Three decades ago the authors of this text attempted to portray the painful personal experiences encountered by early pioneers in surgery. Such experiences point out those hazards that should be avoided in the course of performing a surgical operation. The new edition of this book, which appears in two volumes, calls attention to many such pitfalls that are recorded by a number of well-qualified collaborators. Many chapters have been rewritten entirely, and all of them have been supplemented and thoroughly revised. This has been an enormous but worthwhile task since the present knowledge of surgery, especially of the brain, chest, abdomen, and urinary organs, and plastic repair has undergone many changes and advances in the intervening years. The numerous pithy "do's and don't's" found in these volumes should repay the reader for the time devoted to them. An extensive bibliography is included at the end of each chapter. Greater attention should have been given to orientation in the illustrations, particularly in one that appears on page 235 wherein the addition of a shoulder, chin, or ear might well have oriented the reader. On page 582, division of the ligament of Trietz is depicted in order to obtain greater mobilization of the proximal loop of jejunum; the precarious position of the inferior

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mesenteric vein also should have been presented. Archaic drawings, such as that on page 715, should have been deleted or improved; they are difficult to comprehend despite the accompanying legends. The addition of more color would have enhanced the tridimensional aspect of the illustrations. This is not the type of work that can be read from cover to cover, but it makes an excellent reference book to which the surgeon can refer repeatedly. It can be recommended to those who have a reading knowledge of German.

The Diagnosis and Treatment of Convulsive Disorders in Children. By Samuel Livingston, M.D., Assistant Professor in Pediatrics, Johns Hopkins University School of Medicine, Baltimore. Cloth. $9.50. Pp. 314, with 71 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1954.

So many changes have taken place in the diagnosis and treatment of epilepsy since Berger introduced the electroencephalogram in 1929 and since phenobarbital (1912) was followed by diphenylhydantoin sodium (Dilantin) in 1938 and by a host of other drugs since then, that a new literature has grown up to replace the old. Much has been written on epilepsy in the adult, but few books have appeared on convulsive disorders in children. The volume under review is, therefore, a timely addition, doubly valuable because of its excellent quality, comprehensiveness, and orderly arrangement. The author, well known for his informative exhibits at a recent meeting of the American Medical Association and head of a widely recognized clinic, based his monograph on a study of 4,158 children with seizures, over half of them classified as having cryptogenic epilepsy. Full consideration is given to diagnosis, primary and secondary epilepsy, disorders simulating epilepsy, precipitating factors, electroencephalography, drug therapy, dietary treatment, and inheritance and predisposition. In addition, there is a chapter on the social management of epilepsy by Francis F. Schwenker, and another on surgical treatment by A. Earl Walker. These maintain the high standard set by Dr. Livingston in his thoroughly documented and adequately illustrated book. Because 90% of convulsive disorders have their onset during the early years of life, the book should be of great value to general practitioners and pediatricians. The successful treatment of epilepsy in childhood is based on correct diagnosis, a prolonged use of the ketogenic diet or a skillful balancing of the many available drugs, occasional surgical intervention, continuity of treatment by a conscientious medical advisor, and a cooperative patient. Livingston furnishes readable answers to all the important questions regarding the care of the child with epilepsy. No general practitioner or pediatrician should fail to read this monograph.

Biologie du cristallin. Par Jean Nordmann, professeur de clinique ophtalmologique à la Faculté de médecine de Strasbourg. Rapport présenté à la Société française d'ophtalmologie le 25 mai 1954. Paper. Pp. 730, with 169 illustrations. Masson & Cie, 120 boulevard Saint-Germain, Paris, 6e, France, 1954.

This report is divided into two parts. Part 1 deals with the normal lens, its embryology, anatomy, physical properties, aberrations (optical and chromatic), and mechanical characteristics. There is a thorough discussion of the inorganic and organic chemistry, vitamins, enzymes, intracrystalline metabolism, electrolytic efforts, and factors and mechanism of accommodation. Two excellent photographs taken from Cattaneo, demonstrating the state of the zonules in the presence and absence of accommodation are most instructive. Part 2 is augmented by excellent and numerous photographs. The pathological congenital anomalies are thoroughly and minutely discussed. All of the well-known types of cataract are fully and adequately described. Some of the old and now discarded medical treatments of cataract are mentioned, such as potassium iodide and cyanide of mercury injection, ethyl-morphine, phacolysin or cataractolysin, estrogen-androgens, lens extracts (fish, bovine, and human), parathyroid extract, calcium gluconate, and vitamin D. The author states that since none of these methods can be scientifically evaluated, it is the ophthalmologists' duty to give the affected patients the maximum comfort. At the end of each chapter, the conclusions are enumerated and there is a complete bibliography. This is an excellent unabridged report for the student of ophthalmology who can read French.

Le gliome de la rétine (rétinoblastome) et les pseudogliomes: Étude clinique, génétique et thérapeutique. Par Marc-Adrien Dollfus et Bertranne Auvert. Rapport présenté à la Société française d'ophtalmologie le 23 juin 1953. Paper. Pp. 525, with 110 illustrations. Masson & Cie, 120 Blvd., Saint-Germain, Paris, 6e, France, 1953.

The early chapters discuss, with the usual thoroughness of the French, the nomenclature of one of the most devastating retinal tumors in children. Part 1 deals with the historical and causal facets of glioma, such as age of onset, bilaterality, sex, race, hereditary characteristics, and familial incidence. The authors give a detailed description of the modern concept in the treatment of glioma and look to the future with optimism. They recommend ennucleation for the monocular involvement and subsequent irradiation of the nerve, if it is affected. In bilateral disease, if the tumor in the second eye involves less than one-third of the retina, radium impregnation is recommended. Part 2 deals with pseudogliomas. Under this the authors include: persistent hyperplasia of the primitive vitreous, congenital folds of the retina, retrocrystalline fibroplasia with complete retinal detachment, tuberculous chorioretinitis, infantile nonspecific chorioretinitis, iridochoroiditis fetalis, chorioretinitis of toxoplasmosis, and angioma of the cerebellum. This work should save a great deal of time for anyone wishing a thorough review of the recent literature on this condition.

Legal Medicine. Edited by R. B. H. Gradwohl, M.D., Sc.D., F.A.P.H.A., Director of Police Laboratory, Metropolitan Police Department, St. Louis. Cloth. $20. Pp. 1093, with 222 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1954.

Twenty-nine writers collaborated with the editor in the preparation of this volume, which covers a wide variety of subjects related to legal medicine. The editor, a pathologist, contributed four chapters dealing with the identification of blood stains, blood grouping tests in the determination of nonpaternity, the examination of seminal fluid, infanticide, and official medicolegal investigations. Other chapters, to mention only some of the more significant ones, deal with medicolegal autopsy, postmortem changes, common causes of unexpected deaths, trauma in its forensic aspects, toxicology, forensic psychiatry, medicolegal aspects of alcohol intoxication, evaluation of evidence from the skeleton, and medicolegal use of blood-grouping tests in disputed paternity cases. The value of this book is enhanced by adequate bibliographies appended to some but, unfortunately, not all of the chapters. Many of the contributors are authorities in their particular fields; others are less well known. It is unfortunate that this book does not more materially add to the sum total of information previously available in the important and growing field of legal medicine.

Cytoarchitecture of the Human Brain Stem. By Jerzy Olszewski, M.D., Dr. med., Ph.D., Assistant Professor of Neuroanatomy, Department of Neurology and Neurosurgery, McGill University, Montreal, and Donald Baxter, M.D., C.M., M.Sc. With foreword by J. Godwin Greenfield, M.D. Cloth. $16. Pp. 199, with illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; Sir Isaac Pitman & Sons, Ltd., 39 Parker St., London, W.C.2, England; S. Karger, Arnold Boecklin Str., 25, Basel, Switzerland, 1954.

This atlas of the nerve cell masses of the human brain stem consists of 42 plates and a large number of photomicrographs with only sufficient text to describe the various cell masses and explain the figures. The material is divided into four main sections: (1) serial semischematic drawings and photomicrographs of the brain stem made at right angles to its longitudinal axis; (2) cranial nerve nuclei; (3) various relay nuclei; and (4) nuclei with unknown connections. The illustrations have all been extremely well reproduced and clearly labeled and supplied with adequate legends. This is a work of which the authors and the Montreal Neurological Institute may well be proud. It is an extremely valuable reference book that no medical library or neurological department can afford to be without.

QUERIES AND MINOR NOTES

HYPERSENSITIVENESS TO COLD

TO THE EDITOR:—*A man, aged 44, has generalized or local itching of the skin when in contact with water—purified, swimming, washing—except hands and face. There is no itching in the mouth on drinking and no other allergy. Can you explain?* *Julius Amsterdam, M.D., Philadelphia.*

ANSWER.—The case described is most likely a hypersensitiveness to cold. The condition is thought to be due to a release of histamine by the cold stimulus. There are two major forms of this hypersensitivity, the localized reaction and the type in which there are manifestations distant from the exposed area. In the latter type there may be systemic symptoms of histamine intoxication, such as marked fall in blood pressure and syncope. Such generalized reactions while swimming can, of course, result in drowning. The diagnosis may be confirmed by placing a test tube of ice water against the skin; the area will respond with edema and itching.

Usually such a patient may obtain temporary relief with antihistamines. Daily exposure to a cold bath, followed by warm, may increase the tolerance. Placing the arms in water of about 45 F for about three to five minutes twice daily may increase the resistance to cold. It is also claimed by some that treatment with histamine may correct this condition. This is usually done by giving daily doses, beginning with very small amounts (such as 0.1 cc. of a 1:100,000 solution) intramuscularly and increasing the dose gradually. Also, cold hypersensitivity often disappears spontaneously.

ANTITHROMBIN TEST IN ACUTE PANCREATITIS

TO THE EDITOR:—*Please evaluate the reliability of the antithrombin test as an index of pancreatic disease, as described by Innerfield. We have performed the test on a few patients with equivocal results. We found it a bit unwieldy, but if it proves as definite as described by Innerfield we would like to give it further trial.* *R. B. Wenger, M.D., Minot, N. D.*

ANSWER.—To understand the antithrombin determination in acute pancreatitis, three fundamental observations must be borne in mind: 1. Many of the major signs and symptoms of acute pancreatitis depend on increased systemic absorption of trypsin. 2. Trypsin, like streptokinase and other proteolytic enzymes, has the ability to activate precursor fibrinolytic enzymes present in blood and other tissues. 3. Beyond a certain critical point, plasma antithrombin reflects the extent of trypsin activation of a plasma fibrinolytic enzyme system. Intravenous administration of trypsin in dogs (*J. Clin. Invest.* **31**:1049, 1952) indicated that levels of plasma antithrombin and other clotting constituents showed alterations only after the administration of tremendous quantities of trypsin. Clinically, the milder forms of interstitial or edematous pancreatitis (without sufficient acinar pathological changes to appreciably influence the systemic absorption of trypsin) almost invariably were associated with normal antithrombin levels. These cases usually show transitory but diagnostic elevations in serum amylase level. On the other hand, when the inflammatory process in the pancreas is extensive enough to cause acinar hemorrhage, necrosis, or suppuration the quantity of absorbed trypsin becomes sufficiently high to activate the fibrinolytic mechanisms on which elevations in plasma antithrombin depend. It is in precisely this type of diffuse, extensive, severe pancreatitis that plasma antithrombin determinations find their greatest usefulness. In this type of pancreatitis antithrombin elevations remain detectable throughout the course of the illness, in contradistinction to the usually evanescent serum amylase. Furthermore, since elevated antithrombin levels can be ascribable only to acceleration in the rate of trypsin activation of fibrinolytic enzymes, the antithrombin quantitation carries a high degree of specificity for the severer type of pancreatitis. For this reason, in milder forms of pancreatitis in which serum amylase level is high and antithrombin level is normal, unless one bears in mind the physiological mechanisms underlying antithrombin activation, the results would be considered equivocal.

The actual antithrombin procedure has been simplified. Instead of the 3, 5, 10, 15, and 20 minute incubation samples originally recommended, one 10-minute incubation sample is all that is now required. In the milder form of acute, interstitial, edematous, transitory pancreatitis, the amylase determination is the procedure of choice. In prolonged, severe, abdominal episodes, especially when due to hemorrhagic or necrotic pancreatitis without demonstrable alterations in serum amylase level the plasma antithrombin test has proved of value.

RHEUMATIC CARDIOVASCULAR DISEASE

TO THE EDITOR:—*A woman in the fifth decade has a persistently enlarged liver associated with chronic myocardial insufficiency due to rheumatic endocarditis. Cardiac failure developed about one and one-half years ago, but at this time the liver was not palpable. A digitalis preparation has been given daily since then in addition to oral and parenteral multiple vitamin therapy. Some edema of the lower extremities has been present for one year; several months ago ascites and hepatomegaly (four fingerbreadths below the costal arch) were first noted. With mercurial diuretics, low salt intake, and fluid restriction, the ascites and edema of the extremities have been eliminated, but the enlarged liver and a few rales in the lower lobe of the left lung persist. There is no jaundice, and the spleen is not palpable. The cephalin flocculation test is 3 +; the serum albumin level is 3.2 gm. per 100 cc. and globulin, 4.55 gm. per 100 cc.; the blood urea nitrogen level is 15.8 mg. per 100 cc.; and urinalysis is normal. Is the hepatomegaly caused by chronic passive congestion, cardiac cirrhosis, or some other cause? Is prolonged use of vitamins injurious to the liver? The patient is now sensitive to mercurials and intolerant of ammonium chloride. Diamox is now being used for diuretic purposes.* *M.D., New York.*

ANSWER.—The clinical course of the patient, the persistent liver enlargement despite treatment of the congestive heart failure, and the laboratory findings of liver damage indicate that cirrhotic changes have occurred in the liver secondary to the long-standing, chronic passive congestion. Cardiac cirrhosis may occur in any type of heart disease that produces chronic right heart failure, particularly when associated with tricuspid insufficiency, which may be functional or organic. This is particularly true of the advanced stage of chronic rheumatic cardiovalvular disease, which this case appears to be. Mitral stenosis produces predominant right heart failure and is associated with tricuspid valve involvement more often than is suspected clinically. Constrictive pericarditis is another possible cause, but it is unlikely.

In such cases of advanced rheumatic heart disease with persistent right heart failure and cirrhotic changes in the liver, the response to treatment is notoriously poor. The hepatic enlargement and other signs of right-sided venous congestion generally do not respond satisfactorily to adequate digitalization, low sodium intake, and frequent injections of mercurial diuretics. Progressive weight loss and wasting of body tissues may occur on this regimen despite the persistence of peripheral edema or ascites. There may also be anorexia and nausea, which limit the dietary caloric intake. This superimposes further nutritional changes on the liver, in addition to those produced by the congestive heart failure. For this reason, maintenance of adequate protein and carbohydrate intake and administration of supplementary vitamins are of great importance. There is no clinical evidence that prolonged vitamin therapy is injurious to the liver.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

In the case cited, the fact that the patient has become "sensitive" to mercurials is a bad prognostic sign, since the patient is now deprived of the most important available therapeutic measure. Since anorexia and nausea are so common in this type of case, adequate oral medication with other diuretics, such as ammonium chloride, chlormerodrin (Neohydrin), and Diamox (2-acetylamino-1,3,4-thiadiazole-5-sulfonamide), is generally not possible. Of these, Diamox is the most innocuous and the most effective in small doses. It should be given intermittently, in doses of 250 mg. daily for four or five days and then omitted for two days. Since Diamox enhances the effect of the mercurials, it is possible that a very small dose of a mercurial (0.5 to 1 cc.) administered on the fourth or fifth day of Diamox therapy will produce adequate diuresis without toxic side-effects.

FUNCTIONAL UTERINE BLEEDING

TO THE EDITOR:—*What is the treatment of functional menorrhagia and metrorrhagia?* *M.D., Virginia.*

ANSWER.—Functional bleeding is nearly always of endocrine origin. The exact cause is unknown, but the ovaries, especially the follicle apparatus, play an important role. Hypothyroidism is frequently associated with this condition. Constitutional disability and general illnesses may lead to menorrhagia. In many cases of functional bleeding the endometrium presents the histological picture of hyperplasia, but any type of endometrium may be found. Bleeding between the periods, or metrorrhagia, is strongly suggestive of carcinoma, which must always be ruled out regardless of the patient's age. Other causes of metrorrhagia are retained products of conception, extrauterine pregnancy, polyps, and injudicious use of estrogens.

Treatment of severe functional bleeding is difficult in young women but simple in those at or near the menopause. In the older group a curettage can be performed to rule out a malignant process and 50 mg. of radium inserted into the uterus for 36 hours. This is almost a specific cure for functional bleeding at the climacteric. However, many gynecologists prefer a hysterectomy, usually by the vaginal route, to the use of radium because they have observed carcinoma of the corpus several years after the use of radium at the menopause for benign bleeding associated with hyperplasia. In young women one should never resort to radiation therapy, because ovarian function must be abolished to stop the bleeding, producing menopause with its disagreeable symptoms, and because bleeding may recur. General measures should be used; these include rest in bed at the time of the menses, proper diet, and drugs to restore the blood that is lost. In severe cases, blood transfusions have to be given. Sometimes oxytocics, such as ergot, ergonovine, and pituitary extract, are beneficial. Repeated curettage cures some patients. In young girls every effort should be made to avoid an operative procedure, even curettage, unless it is absolutely essential. In most patients the menses regulate themselves spontaneously after a number of months or years, but young girls must be helped until this occurs or serious symptoms may result from anemia.

Hormones may be used to check excessive menstrual bleeding. Greenblatt (*Am. J. Obst. & Gynec.* **63**:153, 1952) emphasized that the best results in the management of functional uterine bleeding are usually obtained when (1) estrogens are used for those in whom uterine bleeding occurs from a cystic glandular hyperplasia or a persistently estrogenic endometrium; (2) progesterone is used for those in whom the uterine bleeding occurs from an imperfectly progestinal or mixed type of endometrium; and (3) testosterone is used for those in whom bleeding is associated with uterine fibromyomas, adenomyosis, or endometriosis. Generally, profuse uterine bleeding is due to a sudden lowering of estrogen level in the blood; hence the rationale for using estrogens. A satisfactory procedure is the administration of 25 mg. of diethylstilbestrol by mouth every 15 minutes for four doses, then 25 mg. four times a day for two days, and then 25 mg. once a day for two days. More rapid control of bleeding may be obtained by giving 20 mg. of estrone sulfate intravenously every four to eight hours until bleeding is checked. Then estrogens are given by mouth in small doses. Women should be cautioned that they may become nauseated and have abdominal distress while taking the diethylstilbestrol. In some cases, if uterine hemorrhage is due to a disturbance in the corpus luteum, progesterone will be effective. In fact, progesterone is useful for both estrogen and progesterone withdrawal bleeding. Bleeding does not cease dramatically, as it does after estrogen therapy, but only a few days after the therapy is stopped. A satisfactory dose is 25 mg. of progesterone hypodermically daily for four days or 100 mg. of progesterone by mouth daily for four days. Uterine hemorrhage can also be stopped by androgens, but generally the hypodermic route must be chosen; 50 mg. should be given daily for two days and then 50 mg. every second day twice, making a total of 200 mg. of testosterone.

Since time is important in the treatment of profuse uterine bleeding, all three hormones should be combined, because the combination yields far better results than any one hormone alone. The combination recommended by Greenblatt is as follows: 10,000 rat units or 1.66 mg. of estradiol benzoate, 25 mg. of testosterone propionate, and 25 mg. of progesterone. This combination is given hypodermically daily five times. If bleeding stops promptly after the first injection, the dose may be cut in half on the second day and to one-fourth on the third, fourth, and fifth days. Bleeding usually stops within 6 to 24 hours, but spotting may continue for a few days. Withdrawal bleeding for about four to six days occurs one to two days after cessation of therapy. It is important to warn the patient to expect withdrawal bleeding. About 20 days later 10 mg. of anhydrohydroxyprogesterone is taken orally three times a day for five days to induce withdrawal bleeding. This oral therapy is carried out for five days each month for three to five months.

Women with menorrhagia who have definite evidence of hypothyroidism should be given sufficient thyroid medication. If there is normal thyroid function, thyroid treatment will rarely do any good and may do harm. In women with disturbances in clotting, toluidine blue may control the excessive bleeding. Iron, alone or combined with liver, should be prescribed for all women who bleed excessively.

HIGH EOSINOPHIL COUNT

TO THE EDITOR:—*A patient, aged 2½ years, has infrequent attacks of asthma but a constant eosinophilia ranging from 23% to 38% of the total white blood cell counts. The absolute number of circulating eosinophils varies from as low as 426 per cubic millimeter (3%), during an attack of paralytic poliomyelitis, to 8,334 (38%), during an episode thought to be Löffler's pneumonitis. The eosinophilia diminished during the acute poliomyelitis but promptly returned during the first week of convalescence. Numerous stool specimens have been free of ova and parasites. There is no evidence of skin or gastrointestinal allergy, and except for the spells of asthmatic breathing there is no severe respiratory allergy. What would you suggest for a differential diagnosis, and what treatment should be instituted?*

C. L. Concklin, M.D., Corpus Christi, Texas.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—Although unusual, such a high and persistent eosinophilia does occur in some cases of asthma and atopic dermatitis. When asthma is associated with a very high eosinophil count, it is always well to think of an accompanying polyarteritis. This would be rare in such a young child and could only be determined by biopsy. Although most parasitic infestation has been eliminated from consideration, there are other possibilities, such as hydatid disease. Hodgkin's disease and leukemia must also be considered, as must tropical eosinophilia, if there is environmental history, and the puzzling condition known as familial eosinophilia. If the physician or family is alarmed at the condition of the child, bone marrow studies, biopsy, and immunologic tests for parasites should be done.

ANSWER.—Peripheral eosinophilia associated with eosinophilic infiltration of the lungs has been noted in asthmatic children; in many parasitic infestations (as ascariasis, trichinosis, ancylostomiasis, fascioliasis, strongyloidiasis, schistosomiasis, and amebiasis); in tropical respiratory diseases (tropical eosinophilia); and

in collagen diseases such as periarteritis nodosa. Löffler's syndrome is a relatively benign situation. The pulmonary infiltrates frequently dissolve in a few days, but they may last for weeks or months and may recur. The following measures are suggested for continued study of this child: 1. Passive transfer tests for the offending antigen. If successful, desensitization may prove beneficial. 2. Continued periodic checks of stools for parasites and ova. 3. A recheck of the roentgenogram to determine if the pulmonary infiltration continues. If all three procedures continue to give normal findings and there are no symptoms, watchful waiting would be justified.

Vaughn in British East Africa recently reported interesting observations in experimental eosinophilia (Vaughn, J.: *Blood* **8**:1, 1953). He traced the path that the eosinophil probably follows in its journey through the body. From the bone marrow it travels in the blood stream to the lungs or intestines, where, leaving the blood vessel, it makes its way through the tissues to the mucosa of the bronchus or intestine. At this point, in the lung at any rate, it either passes into the lumen of the bronchus and is eliminated from the body or is caught up in the lymphatic system, whereby it may reenter the blood stream, from which it is extracted and subsequently destroyed by the spleen. It is highly probable that the function of the eosinophilic leukocyte is to carry histamine or a histamine-like toxic material from the bone marrow to the tissues for inactivation. This concept provides a common factor among the widely varied clinical conditions with which eosinophilia of the blood is associated in man and offers an explanation of the clinical syndrome of eosinophilic infiltration of the lungs.

ENLARGED TONSILS

To the Editor:—*A 4-year-old child is apparently hard of hearing, especially in one ear. The child has had four attacks of upper respiratory infection complicated by acute catarrhal inflammation of the middle ear on the side of severer loss of hearing. At no time was there discharge from the ears. The child's tonsils are large, protruding almost to the midline. The child sleeps with the mouth shut and does not snore. Is the enlarged size of the tonsils an indication for operative removal? Will removing the tonsils improve the hearing? The child is otherwise healthy.* *M.D., New York.*

Answer.—Although no mention is made of an examination of the adenoid structure, it is very likely that the adenoid tissue will be found to be hypertrophied. In many children removal of hypertrophied adenoid tissue and obstructive, hypertrophied tonsillar tissue reduces the incidence of middle ear inflammation and infection; here, removal of adenoid tissue is especially important in the treatment of conduction deafness. In view of the history given, surgical removal of the tonsils and adenoids appears indicated.

CYSTOSARCOMA PHYLLODES

To the Editor:—*A 73-year-old woman had a breast tumor removed that the pathologist reported to be a sarcoma probably arising from stroma of adenofibroma; a small variant of malignant cystosarcoma phyllodes. I would like to know whether androgen therapy or radiation therapy, or both, should be initiated. The same patient had a leukoplakia of the vulva removed four months ago that the pathologist reported was nonmalignant; could there be a causal connection?* *Berthold M. Stern, M.D., Philadelphia.*

Answer.—Cystosarcoma phyllodes is a variant of the fibroadenoma, which may attain giant size but is almost always benign. However, sarcomatous changes and even carcinomatous changes have been reported in them. In addition, about half of the fibrosarcomas occurring in the breast arise from antecedent fibroadenomas. The treatment of mammary sarcoma is thorough simple mastectomy, including the pectoral fascia; axillary dissection is not indicated. Irradiation therapy and the androgens should be reserved for palliation. There is no evident relationship between sarcoma of the breast and leukoplakia of the vulva.

INTRAMUSCULAR TRANSFUSION NOT RECOMMENDED

To the Editor:—*Some of our older physicians recently brought up the problem whether babies can be given transfusions by intramuscular injection of compatible blood. Some of the younger physicians made an issue of it. Please give data on intramuscular transfusion of blood in babies—not theoretical discussion, but facts only.*

M. A. Martzowka, M.D., Roscommon, Mich.

Answer.—Blood is generally transfused for one of three indications: to replace lost blood or plasma in shock, to raise the number of circulating red blood cells in anemia, or to replace a specific deficiency of one of the plasma components such as prothrombin. The first indication requires *rapid* replacement to save life, the second *maximum* benefit from the red blood cells that are obtained and cross matched with so much labor, and the third, usually, the injection of *large* volumes. On intramuscular injection, plasma is gradually absorbed by way of the lymphatics over several days, and the amount that can be administered is very small, while red blood cells are at best only partly absorbed into the blood stream when injected by this route. In fact, when a muscle is bruised and blood escapes into the tissue, a hematoma forms, which is a pathological condition. Blood should not be injected by any route that does not put it directly where it belongs—within the vascular system.

DIABETES

To the Editor:—*A white woman, aged 51 years, has been suffering with diabetes mellitus for five years. She has a blood sugar level of 140 mg. per 100 cc. and is taking 40 units of protamine zinc insulin. In the past three years her gait has become unsteady; she wobbles so from side to side that she has been accused several times of being under the influence of liquor. She has fallen a number of times, injuring herself. Her condition is becoming worse. Is the above condition caused by the diabetes? What is the prognosis?*

William Geiger, M.D., New York.

Answer.—The patient's central nervous system symptoms are not caused by diabetes itself. It is conceivable that she has hypoglycemia at irregular intervals owing to the insulin she is taking. This could be true in spite of the fact that her fasting blood sugar level is 140 mg. per 100 cc. It is possible, although unlikely, that these levels may be lower at other times of day; blood sugar determinations should be made before lunch and before supper in order to make certain that this is not the case. If these determinations show normal or elevated levels, the likelihood is that the patient has primary disease of the central nervous system. This is likely to be on a vascular basis but could be degenerative or neoplastic. If hypoglycemia can be excluded it would be wise to secure the opinion of a competent neurologist. Therapy and prognosis, of course, depend on diagnosis.

HOLMGREN YARN TEST

To the Editor:—*I am an examining physician for a railroad company. Recently, I was notified that hereafter the Holmgren yarn test will be used in testing color perception of applicants for employment. Please send me an explanation of this test.* *William T. Wildhaber, M.D., Beatrice, Neb.*

Answer.—In using the Holmgren test the patient is directed to choose from 100 or more skeins of colored wool those that match given samples of green, rose, and red wool, which are momentarily exposed. The patient should not be asked to pick out certain colors by name. If he matches gray, light brown, or red as well as green with the given sample of green, he is color blind. If he matches the sample of rose wool with violet or blue, he is red blind, and if he matches green or gray, he is green blind. If he matches the red skein with dark green he is red blind, and if he matches pale green he is green blind. Red, orange, and purple are confused with rose in blue blindness (Berens, C., and Zuckerman, J.: Diagnostic Examination of the Eye, Philadelphia, J. B. Lippincott Company, 1946).